

COST SHEET

Cost Sheet (Traditional Format)

Particulars	Amount
Raw material consumed	
Direct Wages	
Direct Expenses / Chargeable expenses	
Prime Cost	
Factory / Works / Production / Manufacturing Overhead	
Less: Sale of scrap	
Add: Opening stock of WIP	
Less: Closing stock of WIP	
Primary packing material	
Factory / Works cost	
Office & Administration Overhead	
Cost of production	
Add: Opening stock of Finished Goods	
Less: Closing stock of Finished Goods	
Cost of goods sold	
Selling & Distribution Overhead	
Cost of Sales	
Add: Profit	
Sale	

DIRECT VS INDIRECT COST

KEY POINTS

1. **Raw material consumed** = Opening stock of Raw Material
Add: Purchase (net of return)
Add: Freight inward / loading & unloading charges / transit insurance / non recoverable taxes & duties
Less: Closing stock of Raw Material
Less: Abnormal loss of stock

Less: Sale of scrap of material

[Note – No treatment for Normal Loss]
2. **Direct wages** include basic wages, allowances, incentives, overtime, employers contn to PF / other welfare funds, etc.
3. **Direct / Chargeable expenses** – Royalty paid for production, hire charges for specific equipment, cost of specific drawing & designing, utilities, job charges.
4. Items to be excluded from cost sheet:
 - Any abnormal loss
 - Bad debt & provision for bad debt.
 - Any expense of financial nature (eg: interest on loan, cash discount)
 - Provision for income tax.
5. Cost Sheet is prepared on accrual basis.
6. Conversion cost – cost of converting raw material into finished goods

Conversion cost = Direct wages + Direct expenses + Factory Overhead'
7. Common / Joint cost needs to be apportioned amongst joint products in the ratio of units produced X ratio or usage per unit of product

VALUATION OF CLOSING STOCK OF FINISHED GOODS

SITUATION A – OPENING STOCK OF FG DOESN'T EXIST

Illu - Cost of production – Rs 24,00,000

No of units produced – 5000 out of which 4700 units were sold.

SITUATION B – OPENING STOCK OF FG EXISTS

Illu - Opening FG – 8000 units @ Rs 18 / unit = Rs 1,44,000

Production – 32000 units

COP – Rs 666,000

Special points -

Indirect manufacturing costs	40% of conversion cost
Direct manufacturing labour	Rs 2,22,250
Calculate Factory Overhead	

Illu -

Direct Material	4,00,000
Direct Wages	2,24,000
Production overhead	96,000

It is ascertained that the cost per unit ratios are

- (a) Direct Material in type A consists twice as much as that in type B.
- (b) The direct wages for type B were 60% of those for type A.
- (c) Production overhead was the same per pen of A and B type.
- (d) Production during the year were:

Type A 40,000 pens of which 36,000 were sold.

Type B 120,000 pens of which 100,000 were sold.





The books of Adarsh Manufacturing Company present the following data for April, 20X9:

Direct labour cost ` 17,500 being 175% of works overheads.

Cost of goods sold excluding administrative expenses ` 56,000.

Inventory accounts showed the following opening and closing balances:

	April 1 (')	April 30 (')
Raw materials	8,000	10,600
Work-in-progress	10,500	14,500
Finished goods	17,600	19,000

Other data are:

	(')
Selling expenses	3,500
General and administration expenses	2,500
Sales for the month	75,000

IIIu - A Ltd. Co. has capacity to produce 1,00,000 units of a product every month. Its works cost at varying levels of production is as under:

Level	Works cost per unit (`)
10%	400
20%	390
30%	380
40%	370
50%	360
60%	350
70%	340
80%	330
90%	320
100%	310

It's fixed administration expenses amount to ` 1,50,000 and fixed marketing expenses amount to ` 2,50,000 per month respectively. The variable distribution cost amounts to ` 30 per unit.

It can sell 100% of its output at ` 500 per unit provided it incurs the following further expenditure:

- (a) It gives gift items costing ` 30 per unit of sale;
- (b) It has lucky draws every month giving the first prize of ` 50,000; 2nd prize of ` 25,000, 3rd prize of ` 10,000 and three consolation prizes of ` 5,000 each to customers buying the product
- (c) It spends ` 1,00,000 on refreshments served every month to its customers;
- (d) It sponsors a television programme every week at a cost of ` 20,00,000 per month.

It can market 30% of its output at ` 550 per unit without incurring any of the expenses referred to in (a) to (d) above.

Prepare a cost sheet for the month showing total cost and profit at 30% and 100% capacity level.

Illustration

X Ltd Provides you the following figures for the year 2021-22:

Particulars	Amount (`)
Direct Material	3,20,000
Direct Wages	8,00,000
Production Overheads (25% variable)	4,80,000
Administration Overheads (75% fixed)	1,60,000
Selling and Distribution Overheads	2,40,000
Sales @ ` 125 per unit	25,00,000

For the year 2022-23, it is estimated that:

1. Output and sales quantity will increase by 20% by incurring additional advertisement expenses of ` 45,200.
2. Material prices will go up 10%.
3. Wage Rate will go up by 5% along with, increase in overall direct labour efficiency by 12%.
4. Variable Overheads will increase by 5%.
5. Fixed Production Overheads will increase by 33.33%

Required:

- (a) Calculate the Cost of Sales for the year 2021-22 and 2022-23.
- (b) Find out the new selling price for the year 2022-23.
 - (i) If the same amount of profit is to be earned as in 2021-22.
 - (ii) If the same percentage of profit to sales is to be earned as in 2021-22.
 - (iii) If the existing percentage of profit to sales is to be increased by 25%.
 - (iv) If Profit per unit ` 10 is to be earned.

Illustration

An advertising agency has received an enquiry for which you are supposed to submit the quotation. Bill of material prepared by the production department for the job states the following requirement of material:

Paper 10 reams @ ₹1,800 per ream

Ink and other printing material ₹ 5,000

Binding material & other consumables ₹ 3,000

Some photography is required for the job. The agency does not have a photographer as an employee. It decided to hire one by paying ₹10,000 to him. Estimated job card prepared by production department specifies that service of following employees will be required for this job:

Artist (₹12,000 per month) 80 hours

Copywriter (₹10,000 per month) 75 hours

Client servicing (₹9,000 per month) 30 hours

The primary packing material will be required to the tune of ₹4,000. Production Overheads 40% of direct cost, while the Selling & Distribution Overheads are likely to be 25% on Production Cost. The agency expects a profit of 20% on the quoted price. The agency works 25 days in a month and 6 hours a day.

Illustration

The following figures were extracted from the Trial Balance of a company as on 31st December, 2022.

Particulars	Debit Amount (₹)	Credit Amount (₹)
Inventories:		
Raw Material	1,40,000	
Work in Progress	2,00,000	
Finished Goods	80,000	
Office Appliances	17,400	
Plant and Machinery	4,60,500	
Buildings	2,00,000	
Sales		7,68,000
Sales Returns	14,000	
Material Purchased	3,20,000	
Freight on materials	16,000	
Purchase Returns		4,800
Direct Labour	1,60,000	
Indirect Labour	18,000	
Factory Supervision	10,000	
Factory repairs and upkeep	14,000	
Heat, Light & Power	65,000	
Rates & Taxes	6,300	
Miscellaneous Factory Expenses	18,700	
Sales Commission	33,600	
Sales Travelling	11,000	
Sales Promotion	22,500	
Distribution Department Salaries and Wages	18,000	
Office Salaries	8,600	
Interest on borrowed funds	2,000	

Further details are given as follows:

Closing inventories are Material ₹1,80,000, Work in Progress ₹1,92,000 and Finished Goods ₹1,15,000.

Accrued expenses are Direct Labour ₹8,000, Indirect Labour ₹1,200 and Interest ₹2,000.

Depreciation should be provided as 5% on Office Appliances, 10% on Machinery and 4% on Buildings.

Heat, light and power are to be distributed in the ratio of 8: 1: 1 among factory, office and distribution respectively.

Rates & Taxes apply $\frac{2}{3}$ rd to the factory and $\frac{1}{3}$ rd to office.

Depreciation on building to be distributed in the ratio of 8: 1: 1 among factory, office and distribution respectively. Prepare a Cost Sheet showing all important components and also a condensed Profit & Loss Account for the year.

Sun & Moon Ltd. (SML) is a leading hardware manufacturing startup. It manufactured and sold 200 computers in the year 2022. The summarised Trading and Profit & Loss Account of SML for the year 2022 is as follows

Total Output (in units) = 200

Particulars		P a r t i c u l a r s	
To Cost of Material consumed	12,00,000	By Sales	60,00,000
To Direct Wages	18,00,000		
To Manufacturing Charges	7,50,000		
To Gross Profit c/d	22,50,000		
	60,00,000		60,00,000
To Management Expenses	9,00,000 ,	By Gross Profit b/d	22,50,000
To General Expenses	3,00,000		
To Rent, Rates & Taxes	1,50,000		
To Selling Expenses	4,50,000 1		
To Net Profit	4,50,000		
	22,50,000 :	—	22,50,000

The management of SL estimated the following facts for the year 2023:

1. The output and sales will be 300 computers.
2. Price of material will rise by 25% compared to previous year level.
3. Wages per unit will rise by 10%.
4. Manufacturing charges will increase in proportion to the combined cost of material and wages.
5. Selling expenses per unit will remain unchanged.
6. Other expenses will remain unaffected by the rise in output.

Required:

(1) Prepare a Cost Sheet for the year 2023.

(ii) Suggest a Selling Price per unit to earn a profit of 20% on selling prices

From the following information, illustrate and prepare a statement showing profit for the period and determine Cost per Unit

1.

	Opening	Closing
Raw Materials:	₹29,500	₹36,000
Work-in-progress:		
Material	13,600	12,000
Wages	11,000	16,500
Works overhead	6,600	9,900
Finished Goods:	200 units@ ₹84	1600 Units

2. Purchases of raw material ₹1,90,000, Carriage on purchases ₹1,500, Sale of scrap of raw materials ₹5,000

3. Wages ₹2,97,000

4. Works overheads are absorbed @ 60% of direct labour cost.

5. Administration overhead are absorbed @ ₹ 12 per unit produced.

6. Selling and distribution overhead are absorbed @ 20% of selling price.

7. Sales – 7600 units at a profit of 10% on sales price

MNQ LLP submits the following information on 31st March 2023. Based on the given data, illustrate and prepare a statement of cost

Details	(`)
Sales for the year	2,75,000
Inventories at the beginning of the year: Finished goods	7,000
Work in Progress	4,000
Purchase of the material for the year	1,10,000
Material inventory: At the beginning of the year	3,000
At the end of the year	4,000
Direct Labour	65,000
Factory overhead: 60% of direct labour cost	
Inventories at the end of the year: Finished goods	8,000
Work in Progress	6,000
Other expenses for year:	
Selling expenses - 10% of sales	
Administrative expense – 5% of sales	

GG Limited provides the following particulars for the year 2022

Particulars	(₹)	Particulars	(₹)
Opening stock of raw materials	35,000	Carriage on goods sold	1,500
Purchase of raw materials	75,000	Rent and rates of Workshop	3,500
Raw materials returned to suppliers	1,500	Fuel, gas, water etc.	1,000
Closing stock of raw materials	17,000	Repairs to plant	600
Wages paid to :		Depreciation on Machinery	1,400
Productive workers	20,000	Office expenses	2,000
Non-productive workers	2,500	Direct chargeable expenses	1,000
Salaries paid to office staff	5,000	Advertising	1,500
Carriage on raw materials purchased	1,500	Abnormal loss of raw materials	3,000
Cash Discounts received	3,000	Loss on sale of investment	5,000

What is the cost of sales?

(a) ZOXIN LTD. manufactures two types of pens 'Super Pen' and 'Normal Pen'. The cost data for the year ended 31st March, 2022 is as follows:

	₹
Direct Materials	8,00,000
Direct Wages	4,48,000
Production Overhead	1,92,000
Total	<u>14,40,000</u>

It is further ascertained that:

- (1) Direct materials cost in Super Pen was twice as much as direct material in Normal Pen
- (2) Direct Wages for Normal Pen were 60% of those for Super Pen
- (3) Production overhead per unit was at the same rate for both the types
- (4) Administration overhead was 200% of direct labour for each
- (5) Selling cost was ₹ 1 per Super Pen
- (6) Production and sales during the year were as follow:

Production		Sales	
	No. of Units		No. of Units
Super Pen	40,000	Super Pen	36,000
Normal Pen	1,20,000		

- (7) Selling price was ₹ 30 per unit for Super Pen.

Required:

Prepare a cost sheet for 'Super Pen' showing:

- (i) Total work cost
- (ii) Cost per unit and Total Cost



MATERIAL

STOCK LEVELS

Reorder Level (ROL) - stock level at which next order should be placed	a. Company does not maintain safety stock $\text{ROL} = \text{Maximum Consumption} \times \text{Maximum lead time}$ b. Company maintains safety stock $\text{ROL} = \text{Safety stock} + \text{Normal consumption} \times \text{Normal lead time}$
Minimum Stock Level / Safety stock / Buffer stock / Base stock	$\text{ROL} - \text{Normal consumption} \times \text{Normal lead time}$
Maximum Stock Level	$\text{ROL} - \text{Minimum consumption} \times \text{Minimum lead time} + \text{ROQ}$
Average Stock Level	$(\text{Maximum Stock Level} + \text{Minimum Stock Level}) / 2$ $\text{Safety stock} + \text{EOQ} / 2$
Danger Level	$\text{Normal consumption} \times \text{Lead time for emergency purchases}$

Notes:

- a. Lead time / Reorder period / Delivery period - denotes the time gap between the date of placing the order and date of receipt of material from supplier.
- b. Maximum Consumption = Maximum production X Usage per unit of product
 Minimum Consumption = Minimum production X Usage per unit of product
 Average Consumption = Average production X Usage per unit of product
- c. Consumption and lead time should be expressed in same terms

A company uses three raw materials A, B and C for a particular product for which the following data apply

Raw material	Usage Per unit of Product (Kgs)	Re-order Quantity (Kg)	Price per kg (₹)	Delivery period (in weeks)			Re- order Level (Kgs)	Minimum Level (Kgs)
				Min	Avg	Max		
A	10	10000	0.10	1	2	3	8000	–
B	4	5000	0.30	3	4	5	4750	–
C	6	10000	0.15	2	3	4	–	2000

Weekly production varies from 175 to 225 units, averaging 200 units of the said product. Calculate:

(i) Minimum Stock of A

(ii) Maximum stock of B

(iii) Re- order level of C

(iv) Average stock level of A

ECONOMIC ORDER QUANTITY (EOQ)

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Annual Requirement	5000	5000	5000	5000	5000
Qty / order	5000	2500	1000	500	1
No of order	1	2	5	10	5000
Ordering cost					
Carrying cost					

$$EOQ = \frac{2AO}{C}$$

“A” denotes Annual requirement / purchase / demand / consumption of raw material.

If nothing is specified, we should annualise normal usage / consumption

“O” denotes Ordering Cost/Order

“C” denotes carrying cost per unit per annum

If carrying cost is expressed as a %, then it should be applied as a % on purchase price or cost per unit to calculate “C”

Note: Read the first sentence of question carefully to identify Raw Material. *If the company manufactures / produces a product, then it's a Finished Goods.*

Kartik & Co, manufactures a special product, which requires 'ZED'. The following particulars were collected for the year 2019-20:

- (i) Monthly demand of Zed 7,500 units
- (ii) Cost of placing an order ` 500
- (iii) Re-order period 5 to 8 weeks
- (iv) Cost per unit ` 60
- (v) Carrying cost p.a. 10%
- (vi) Normal usage 500 units per week

Shriram enterprise manufactures a special product “ZED”. The following particulars were collected for the year 2011:

- (a) Monthly demand of ZED – 1,000 units
- (b) Cost of placing an order ` 100.
- (c) Annual carrying cost per unit ` 15.
- (d) Normal usage 50 units per week.
- (e) Minimum usage 25 units per week.
- (f) Maximum usage 75 units per week.
- (g) Re-order period 4 to 6 weeks.

Simran Limited produces a product which has a monthly demand of 52,000 units. The product requires a Component X which is purchased at ` 15 per unit. For every finished product, 2 units of Component X are required. The ordering cost is ` 350 per order and the carrying cost is 12% p.a.

A company manufactures a product from a raw material, which is purchased at ` 80 per kg. The company incurs a handling cost of ` 370 plus freight of ` 380 per order. The incremental carrying cost of inventory of raw materials is ` 0.25 per kg. per mensem. In addition, the cost of working capital finance on the investment in inventory of raw materials is ` 12 per kg. per annum. The annual production of the product is 1,00,000 units and 2.5 units are obtained from one kg of raw materials.

Company manufactures a special product which requires a component 'Alpha'.

- (i) Annual demand of Alpha 8,000 units
- (ii) Cost of placing an order ` 200 per order
- (iii) Cost per unit of Alpha ` 400
- (iv) Carrying cost p.a. 20%

G. Ltd. produces a product which has a monthly demand of 4,000 units. The product requires a component X which is purchased at ` 20. For every finished product, one unit of component is required. The ordering cost is `120 per order and the holding cost is 10% p.a.

KL Limited produces product 'M' which has a quarterly demand of 8,000 units. The product requires 3 kg. quantity of material 'X' for every finished unit of product. The other information are follows:

- Cost of material 'X' : ` 20 per kg.
- Cost of placing an order : ` 1,000 per order
- Carrying Cost : 15% per annum of average inventory

EVALUATION OF ALTERNATIVES (EOQ VS NON-EOQ)

		EOQ	ALT 1	ALT 2
Annual requirement of RM	a	Will be given in the qsn		
Quantity / order	b	We will calculate	Will be given in the qsn	
c. No of orders	a / b			
d. Cost or Purchase price per unit	d	Will be given in the qsn	After considering discount analysis	
e. Ordering cost	c X Ordering cost			
f. Carrying cost	b / 2 X Carrying cost pupa			
g. Purchase cost	a X d			
h. Total cost	e+f+g			

Exam focus –

a. AT EOQ ;CARRYING COST= ORDERING COST.

b. Relevant cost –

Without trade discount – Only ordering cost and carrying cost

With trade discount – Purchase cost, ordering cost and carrying cost

c. In case of range of quantity, we will always consider the lower limit of range to solve the question.

d. If carrying cost is expressed as a %, then remember carrying cost per unit per annum will change with the change in purchase price or cost per unit (in case of trade discount).

Frequency of placing the order = $360 / \text{No of orders}$

Annual requirement of Coca Cola of 144,000 units is currently purchased in 8 installments. Each unit costs ` 4 and the ordering cost is ` 100. The inventory carrying cost is estimated at 20% of unit value. How much money can be saved by Economic Order Quantity.

- (i) Annual demand of Alpha 8,000 units
- (ii) Cost of placing an order ` 200 per order
- (iii) Cost per unit of Alpha ` 400
- (iv) Carrying cost p.a. 20%

The company has been offered a quantity discount of 4 % on the purchase of 'Alpha' provided the order size is 4,000 components at a time.

INVENTORY TURNOVER RATIO

Inventory / stock turnover ratio = Raw material consumed

Average stock of RM

	Material X	Material Y
Opening stock 1.1.2019	25,000	87,500
Purchase during the year	190,000	1,25,000
Closing stock 31.12.2019	15,000	62,500

STORES LEDGER

Date	Receipt			Issue			Balance		
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt

Key points:

1. Both purchase from supplier & return from production department – shown in receipt column.
2. Any issue to production dept.& return to supplier –shown under issue column.
3. Any inter department /inter job transfer not to be considered.
4. Any return to supplier – will be recorded under Issue column at same rate at which they were purchased from supplier.
5. Any return from production department - will be recorded under Receipt column at last rate at which the material were issued to Production Department.
6. Any shortage should be shown under issue column.

LANDED COST

Sky & Co., an unregistered supplier under GST, purchased material from Vye Ltd. which is registered under GST. The following information is available for one lot of 5,000 units of material purchased:

Listed price of one lot	₹ 2,50,000
Trade discount @	10% on listed price
CGST and SGST (Credit Not available)	12% (6% CGST + 6% SGST)
Cash discount @	10%
(Will be given only if payment is made within 30 days.)	
Toll Tax paid	₹ 5,000
Freight and Insurance	₹ 17,000
Demurrage paid to transporter	₹ 5,000
Commission and brokerage on purchases	₹ 10,000
Amount deposited for returnable containers	₹ 30,000
Amount of refund on returning the container	₹ 20,000
Other Expenses @	2% of total cost

20% of material shortage is due to normal reasons.

The payment to the supplier was made within 21 days of the purchases.

You are required to CALCULATE cost per unit of material purchased by Sky & Co.

The particulars relating to 1,200 kgs of a certain raw material purchased by a company during June, were as follows:

Lot prices quoted by supplier and accepted by the company for placing the purchase order:

Lot size upto 1,000 kgs @ ` 22 per kg

Between 1,000 – 1,500 kgs @ ` 20 per kg

Between 1,500 – 2,000 kgs @ ` 18 per kg

Trade discount – 20%

Additional charge for containers @ ` 10 per drum of 25 kgs

Credit allowed on return of containers @ ` 8 per drum

GST @ 12% on raw material and 5% on drums

Total freight paid by the purchaser ` 240.

Insurance @ 2.5% (on net invoice value) paid by the purchaser

Stores overhead applied @ 5% on total purchase cost of material

The containers are returned in due course.

Draw up a suitable statement to show Total cost of material purchased

. PQR Tubes Ltd. are the manufacturer of picture tubes of T.V. The following are the details of their operations during 2022-2023

Ordering cost	₹100 per order	Inventory carrying cost	20% p.a
Cost of tubes	₹500 per tube	Normal usage	100 tubes per week
Minimum usage	50 tubes per week	Maximum usage	200 tubes per week
Lead time to supply	6-8 weeks		

Compute:

- (i) Economic order quantity. If the supplier is willing to supply quarterly 1,500 units at a discount of 5%, is it worth accepting?**
- (ii) Re-order level;**
- (iii) Maximum level of stock;**
- (iv) Minimum level of stock**

The following relates to a particular item of materials of a manufacturing company.

Ordering quantities (tonne)	Price per ton (Rs.)
Less than 250	6.00
250 but less than 800	5.90
800 but less than 2,000	5.80
2,000 but less than 4,000	5.70
4,000 and above	5.60

The annual demand for the material is 4,000 tonnes. Stock holding costs are 25% of material cost p.a.
The delivery cost per order is Rs. 6.00.

You are required to compute the following:

- (i) Optimum Order Size (in units)
- (ii) Annual Ordering Cost (in Rs.)
- (iii) Annual Carrying Cost (in Rs.)
- (iv) Annual Total Inventory Cost (in Rs.) annum if orders are made according to optimum order size.

The components A and B are used as follows:

Normal usage	300 units per week each
Maximum usage each	450 units per week
Minimum usage	150 units per week each
Reorder Quantity	A 2,400 units; B 3,600 units.
Reorder period weeks.	A 4 to 6 weeks, B 2 to 4

Calculate for each component:

- (i) Re-order Level
- (ii) Minimum Level
- (iii) Maximum Level
- (iv) Average Stock Level

MVC Ltd. manufactures a special product, which requires 'ABB'. The following particulars were collected for the year 2021-22:

(i)	Monthly demand of Zed:	6,500 units
(ii)	Cost of placing an order :	₹ 500
(iii)	Re-order period :	5 to 8 weeks
(iv)	Cost per unit :	₹ 50
(v)	Carrying cost % p.a. :	10%
(vi)	Normal usage :	500 units per week
(vii)	Minimum usage:	250 units per week
(viii)	Maximum usage per week :	750 units

Required:

- (i) Re-order quantity
- (ii) Re-order level
- (iii) Minimum stock level
- (iv) Maximum stock level
- (v) Average stock level

M/s SJBA Private Limited manufactures 20,000 units of a product per month. The cost of placing an order is ₹ 1,500. The purchase price of the raw material is ₹ 100 per kg. The re-order period is 5 to 7 weeks. The consumption of raw materials varies from 200 kg to 300 kg per week, with the average consumption being 250 kg. The carrying cost of inventory is 9.75% per annum. Lead time for emergency purchases is 5 days.

You are required to calculate:

- (i) Re-order quantity
- (ii) Re-order level
- iii) Maximum level
- iv) Minimum level
- (v) Average stock level
- vi) Danger level

CONTRACT COSTING

CONTRACT NO..... ACCOUNT (FIRST YEAR)

Particulars	Amt	Particulars	Amt
To Material purchased		By Purchase return	
- From supplier		- To supplier	
- From stores		- Returned to stores	
- From other contract		- Transferred to other contract	
To Costing PL – profit on sale of material		By Sale of material (sale proceeds)	
To Labour (on accrual basis)		By Costing PL – loss on sale of material	
To other expenses e.g. subcontracting charges, maps & design, architect fees, general charges		By Costing PL – abnormal loss of material (NO TREATMENT OF NORMAL LOSS)	
To Depreciation on Plant (Alt 1)		By Closing stock of Material	
To Plant purchased (Alt 2)		By WDV of Plant at year-end (Alt 2)	
To Costing PL – profit on sale of plant (Alt 2)		By Sale of plant (Alt 2)	
		By Costing PL – loss on sale of plant (Alt 2)	
		By Balance c/d – Cost of work to date	
To Balance b/d – Cost of work to date		By WIP – work certified	
To Notional profit c/d		By WIP – work uncertified	
		By Escalation	
To Costing PL		By Notional profit b/d	
To Profit Reserve			

Accrual basis: Expenses paid + Outstanding at year-end – Outstanding at beginning + Prepaid at beginning – Prepaid at year-end

Special Points –

Land purchased –

Brokerage and registration fee paid on the above purchase –

Donation paid to local clubs –

Fines and penalty paid –

CALCULATION OF COWTD

A contractor commenced a contract on 01-07-2013. The costing records concerning the said contract reveal the following information as on 31-03-2014.

	Amount (₹)
Material sent to site	7,74,300
Material returned to store	32,500
Labour paid	10,79,000
Labour outstanding as on 31-03-2014	1,02,500
Salary to Engineer	20,500 per month
Cost of plant sent to site (01-07-2013)	7,71,000
Salary to Supervisor (3/4 time devoted to contract)	9,000 per month
Site office cost	45,300
Plant hire charges paid for three years	39,000
Administration & other expenses	4,60,600
Prepaid Administration expenses	10,000
Material in hand at site as on 31-03-2014	75,800

Plant used for the contract has an estimated life of 7 years with residual value at the end of life ₹ 50,000. Some of material costing ₹ 13,500 was found unsuitable and sold for ₹ 10,000. Material which cost ₹ 3,000 was destroyed by fire. There was a normal loss of material of ₹ 7,000



WORK CERTIFIED VS WORK UNCERTIFIED

COWTD – Rs 36,00,000

Contract price -Rs 80,00,000

Contractor claimed 60% as work completed out of which 50% was certified by architect. Retention money – 20%

Contract price was Rs 45,00,000. On 31-03-2014 two third of the contract was completed. The architect issued certificate covering 50% of the contract price and contractor has been paid Rs 20,00,000 on account.

COWTD – Rs 22,00,000

Cash received on account to date was Rs 1,75,000, representing 80% of the work certified. The cost of work uncertified was valued at Rs 27,375. Contract price – Rs 5,00,000

Notional profit to be transferred to PL is based on the DOC of the contract (Work Certified / Contract Price).

DOC < 25% - Nil

25% < DOC < 50% - $\frac{1}{3} \times \text{Notional Profit} \times \text{Cash received} / \text{Work certified}$

50% ≤ DOC < 90% - $\frac{2}{3} \times \text{Notional Profit} \times \text{Cash received} / \text{Work certified}$

DOC ≥ 90% - Estimated Profit X Cash received / contract price

ESTIMATED PROFIT

Estimated profit = Contract price – (COWTD + Further estimated cost including contingencies)

The total contract was for ` 27,12,500. Actual expenditure in 2013-14 and estimated expenditure in 2014-15 are given below:

	2013-14 Actual (₹)	2014-15 Estimated (₹)
Material issued	4,56,000	8,14,000
Labour : Paid	3,05,000	3,80,000
Outstanding at end :	24,000	37,500
Expenses : Paid	1,00,000	1,75,000
Outstanding at the end	-	25,000
Prepaid at the end	22,500	-
Plant purchased	2,25,000	-
Plant returned to stores (a historical stores)	75,000	1,50,000 (on Dec. 31 2014)
Closing Material at site	30,000	75,000
Work-in progress certified	12,75,000	Full
WIP uncertified	40,000	----

The plant is subject to annual depreciation @ 20% of WDV cost. Prepare Contract A/C and estimated profit.

CONTRACT ACCOUNT FOR SUBSEQUENT PERIOD (2ND YEAR AND ONWARDS)

Particulars	Amt	Particulars	Amt
To Opening stock of material		By Profit Reserve	
To Opening WIP – work certified		-	
To Opening WIP – work uncertified			
To All 2 nd year expenses			
		By WIP – work certified (on cumulative basis)	
To Notional profit		By WIP – work uncertified	

Illu - The following balances and information relate to the contract for the year ended 31st March, 2019:

	1.4.2018	31.3.2019
Work-in-progress:		
Work certified	10,60,000	38,40,000
Work uncertified	26,800	92,400
Materials at site	9,200	19,750
Accrued wages	2,000	4,600
Materials issued from store	4,27,980	
Materials directly purchased	1,99,800	
Wages paid	6,87,300	
Architect's fees	71,000	
Plant hire charges	92,400	
Indirect expenses	12,860	
Share of general overheads	48,000	
Materials returned to store	65,000	
Materials returned to supplier	25,600	
Fines and penalties paid	12,780	

CONTRACTEE ACCOUNT

BALANCE SHEET (EXTRACT)			
Liability	Amt	Asset	Amt
		Fixed Asset (WDV)	
Costing PL		Closing stock of RM	
Profit Reserve		WIP-work certified Less: Payment received from contractee	
Outstanding expenses		WIP – work uncertified	
		Prepaid expenses	

ESCALATION CLAIM

	Standard	Actual	Escalation
Materials:			
A	5000 kgs. @ ` 50	5050 kgs. @ ` 48	
B	3500 kgs @ ` 80	3450 kgs. @ ` 79	
C	2500 kgs. @ ` 60	2600 kg. @ ` 66	
Wages:			
P	2000 Hrs. @ ` 70	2100 Hrs. @ ` 72	
Q	2500 Hrs. @ ` 75	2450 Hrs. @ ` 75	
R	3000 Hrs. @ ` 65	3100 Hrs. @ ` 66	

Deluxe limited undertook a contract for `5,00,000 on 1st July, 2022. On 30th June 2023 when the accounts were closed, the following details about the contract were gathered:

Materials purchased	1,00,000
Wages paid	45,000
General expenses	10,000
Plant Purchased	50,000
Materials on hand 30.6.2023	25,000
Wages accrued 30.6.2023	5,000
Work certified	2,00,000
Cash received	1,50,000
Depreciation of Plant	5,000
Work uncertified	15,000

The above contract contained an escalator clause which read as follows:

“In the event of prices of materials and rates of wages increase by more than 5% the contract price would be increased accordingly by 25% of the rise in the cost of materials and wages beyond 5% in each case”.

It was found that since the date of signing the agreement the prices of materials and wage rates increased by 25% the value of the work certify does not take into account the effect of the above clause.

Prepare the contract account. Working should form part of the answer.

M/s RON (PVT) LTD. commenced a contract on 1st July, 2022 and the company closes its account for the year on 31st March every year. The following information relates to the contract as on 31st March 2023:

(i) Material issued	948000
(ii) Direct wages	457200
(iii) Prepaid direct wages as on 31.03.2023	108000
(iv) Administration charges	720000

(v) A supervisor, who is paid 50,000 per month, has devoted 720000 two third of his time to this contract.

(vi) A plant costing 7,85,270 has been on the site for 185 days, its working life is estimated at 9 years and its scrap value is 75,000.

The contract price is 42 lakhs. On 31st March 2023 two-third of the contract was completed. The Architect issued certificate covering 50% of the contract price and the contractor had been paid 15.75 lakhs on account.

(Assume 365 days in a year).

You are required to:

- (i) Prepare a Contract Account showing work cost.
- (ii) Calculate Notional Profit or Loss as on 31st March, 2023

A company undertook a contract for construction of a large residual complex. The construction work commenced on 1st April, 2021 and the following data are available for the year ended 31st March, 2022

	(₹ '000)
Contract Price	35,000
Work Certified	20,000
Progress Payments Received	15,000
Materials Issued to Site	8,500
Planning & Estimating Costs	1,000
Direct Wages Paid	4,020
Materials Returned From Site	270
Plant Hire Charges	2,000
Wage Related Costs	500
Site office costs	650
Head Office Expenses apportioned	350
Direct Expenses incurred	1,000
Work Not Certified	150

The contractors own a plant which originally cost ₹30 lacs have been continuously in use in this contract throughout the year. The residual value of the plant after 5 years of life is expected to be ₹5 lacs. Straight line method of depreciation is in use.

As on 31st March, 2022 the direct wages due and payable amounted to ₹2,50,000 and the materials at site were estimated at ₹5,00,000.

Required:

- Record all the above information in a Contract Account.
- Show the calculation of profit to be taken to the profit and loss account of the year

The following details are available from the books of accounts of a contractor with respect to a particular construction work for the year ended 31st March, 2022

	(₹)
Contract price	91,00,000
Cash received from contracted (90% of work certified)	71,91,000
Material sent to site	35,82,600
Planning and estimation cost	3,50,000
Direct wages paid	32,62,700
Cost of plant installed at site	8,00,000
Direct expenses	1,68,000
Establishment expenses	2,50,000
Material returned to store	15,000
Head office expenses apportioned	2,50,000
Cost of work uncertified	3,17,000
On 31 st March, 2019:	
Material at site	85,000
Accrued direct wages	77,300
Accrued direct expenses	12,000
Value of plant(as revalued)	7,16,000

- (b) M/s Goyal Brothers accepted a contract for the construction of a building for ₹ 10,00,000. Construction work started on 1st July, 2022 and the firm usually closes its books of accounts for the year on 31st March of each year. The contractee agreed to pay 90% of work certified as certified by the architect. During the first year, the amount spent was as follows:

Particulars	₹
Material and stores	1,20,000
Labour charges	1,50,000
Plant issued	30,000
Salaries and other expenses	90,000
Plant at site (Year end)	20,000
Material at site (Year end)	5,000
Work certified	4,00,000
Work uncertified	15,000

Further Information:

- Materials costing ₹ 6,000 was damaged during the year.
- A Supervisor who devotes one-half of his time on the contract has an outstanding salary for 2 months. He is paid @ ₹ 4,000 per month.
- A special machine was hired for the contract for 4 months @ ₹ 500 per month.

Required:

Prepare Contract Account in the books of the firm. Also show the amount of profit that can be transferred reasonably to the profit and loss account.

-) M/s North West Limited undertook a contract for ₹ 5,00,000 on 1st January 2022. The company furnishes the following details for the year ended 31st December 2022:

	₹
Materials consumed	1,65,000
Direct Expenses	5,000
Wages	30,000
Materials returned to stores	5,000
Materials stolen from site	10,000
Insurance claim admitted	6,000
Works expenses @ 20% on wages	
Office expenses @ 10% on works cost	
Materials in hand on 31.12.2022	15,000
Cash received to the extent of 90% of works certified	2,70,000
Cost of work uncertified	11,000

Plant sent to site costing ₹ 60,000 with a scrap value of ₹ 10,000 and its useful life is 5 years. The plant was used on the contract for 146 days.

You are required to:

Prepare Contract Account showing therein the cost of materials issued to site and the amount of profit or loss to be transferred to the Profit & Loss Account.



LABOUR

LABOUR COST

Particulars	Amount
Basic Wages - Time rate - Piece rate - Combination of time and piece rate	
Dearness allowance - Fixed - % of basic - Based on cost of living index	
House Rent allowance - Fixed - % of basic	
Bonus - As per Payment of Bonus Act - Incentive scheme like Halsey / Rowan	
Overtime - As per Factories Act (eligible if worker works for more than 9 hr / day or 48 hr / week at double the rate of Basic +DA)	
Other fringe benefits	
Gross Earnings	
Add: Employer's contribution to PF / ESI	
Labour cost / Cost to Company	
Gross Earnings	
Less: Employee's contribution to PF / ESI	
Net Earnings	

Effective hour worked

Effective hour worked = (Total available days – holiday – leave) X Hour / day
– Normal idle time

Calculate the earnings of A and B from the following particulars for a month and allocate the labour cost to each job X, Y and Z :

	A	B
(i) Basic Wages	`100	` 160
(ii) Dearness Allowance	50%	50%
(iii) Contribution to Provident Fund (on basic wages)	8%	8%
(iv) Contribution to Employees' State Insurance (on basic wages)	2%	2%
(v) Overtime	Hours 10	-

The normal working hours for the month are 200. Overtime is paid at double the total of normal wages and dearness allowance. Employer's contribution to State Insurance and Provident Fund are at equal rates with employees' contributions. The two workers were employed on jobs X, Y and Z in the followings proportions (Overtime was done on Job Y):

	Jobs		
	X	Y	Z
Worker A	40%	30%	30%
Worker B	50%	20%	30%

LABOUR TURNOVER

METHODS	%
LTO as per separation method = $\frac{\text{No of workers separated (i.e. left \& discharged)}}{\text{Average no of workers}} \times 100$	
LTO as per replacement method = $\frac{\text{No of workers replaced}}{\text{Average no of workers}} \times 100$	
LTO as per New recruitment method = $\frac{\text{No of workers newly recruited for expansion}}{\text{Average no of workers}} \times 100$	
LTO as per Flux method = Summation of all 3 methods	
NOTES:	
1. Average no of workers = $\frac{\text{Opening workers} + \text{Closing workers}}{2}$	
2. Closing workers = Opening workers – separated + replaced + new recruitment	
3. Accession = Workers replaced + New recruitment	
4. Flux method variants	
5. Equivalent Annual Labour Turnover Rate = $\frac{\text{Labour Turnover Rate Computed above} \times 365}{\text{Days / Weeks / Months in the given period}}$	

COST ASSOCIATED WITH LABOUR TURNOVER

- Contribution lost due to labour turnover = $\frac{\text{Existing Contribution}}{\text{Effective labour hour worked}} \times \text{Labour hour lost}$
- Cost of rectification of defective units = No of defective units X Cost of rectification / unit
- Settlement cost
- Recruitment cost
- Selection cost
- Training cost



During October 2021, the following information is obtained from the Personnel Department of a manufacturing company. Labour force at the beginning of the month 1,900 and at the end of the month 2,100. During the month 25 people left while 40 persons were discharged. 280 workers were engaged out of which only 30 were appointed in the vacancy created by the number of workers separated and the rest on account of expansion scheme. Calculate the Labour Turnover by different methods.

The LTO of an organisation 10%, 5%, & 3% respectively under Flux Method, Replacement Method & Separation Method. If the number of workers replaced during that quarter is 30, find the no of workers a. recruited & joined ; b. left & discharged

The management of XYZ Ltd is worried about the increasing Labour Turnover in the factory and before analyzing the causes and taking remedial steps; they want to have an idea of the profit foregone as a result of Labour Turnover during the last year. Last year's sales amounted to ` 83,03,300 and the profit / volume ratio was 20%. The total number of actual hours worked by the direct labour force was 4.45 lakhs. As a result of the delays by the personnel department in filling vacancies due to Labour Turnover, 1,00,000 potentially productive hours were lost. The actual direct labour hours included 30,000 hours attributable to training new recruits, out of which, half of the hours were unproductive. The cost incurred consequent on labour turnover revealed, on analysis the following: Settlement cost due to leaving: ` 43,820, recruitment costs: ` 26,740, selection costs: ` 12,750 and training costs: ` 30,490.

Assuming that the potential production lost as a consequence of Labour Turnover could have been sold at prevailing prices, find out the profit foregone last year on account of Labour Turnover.

HALSEY AND ROWAN PLAN

BONUS AS PER HALSEY = $50\% \times \text{TIME SAVED} \times \text{RATE} / \text{HOUR}$

BONUS AS PER ROWAN = $\text{TIME TAKEN} \times \text{TIME SAVED} / \text{TIME ALLOWED} \times \text{RATE} / \text{HOUR}$

BASIC WAGES = $\text{TIME TAKEN} \times \text{RATE} / \text{HOUR}$

TIME SAVED = $\text{TIME ALLOWED}^{**} - \text{TIME TAKEN}$

**** CALCULATE TIME ALLOWED FOR ACTUAL UNITS / OUTPUT PRODUCED**

EFFECTIVE HOURLY RATE = $\frac{\text{BASIC WAGES} + \text{BONUS}}{\text{TIME TAKEN}}$

EXAM FOCUS –

A skilled worker in XYZ Ltd. is paid a guaranteed wage rate of ` 30 per hour. The standard time per unit for a particular product is 4 hours. P, a machine man, has been paid wages under the Rowan Incentive Plan and he had earned an effective hourly rate of ` 37.50 on the manufacture of that particular product.

Required: What could have been his total earnings and effective hourly rate, had he been put on Halsey Incentive Scheme (50%)?

A skilled worker is paid a guaranteed wage rate of ₹120 per hour. The standard time allowed for a job is 6 hour. He took 5 hours to complete the job. He is paid wages under Rowan Incentive Plan.

(a) Calculate his effective hourly rate of earnings under Rowan Incentive Plan.

(b) If the worker is placed under Halsey Incentive Scheme (50%) and he wants to maintain the same effective hourly rate of earnings, calculate the time in which he should complete the job.

Worker	A	B	C
Actual hours worked in a week	38	40	34
Hourly rate of wages	₹ 6	₹ 5	₹ 8
Production in units:			
Product P	21	--	60
Product Q	36	--	135
Product R	46	25	--
Standard time allowed per unit of each product is:			
	P	Q	R
Minutes	12	18	30

The current output on an average is 6 units/ man hour which may be regarded as standard output. If bonus scheme is introduced, it is expected that the output will increase to 8 units per man hour. The workers will, if necessary, continue to work overtime up to the specified limit although no premium on incentives will be paid. The budgeted weekly output is 19,200 units. direct workers is paid ` 400 as wages per week of 40 hours.

The case of three typical workers Achyuta, Ananta and Govida who produce respectively 180, 120 and 100 units of the company's product in a normal day of 8 hours is taken up for study. Assuming that day wages would be guaranteed at ` 75 per hour and the piece rate would be based on a standard hourly output of 10 units

Two workmen, Vishnu & Shiva, produce the same product using the same material. Their normal wage rate is also the same. Vishnu is paid bonus according to the Rowan system, while Shiva is paid bonus according to the Halsey system. The time allowed to make the product is 100 hours. Vishnu takes 60 hours while Shiva takes 80 hours to complete the product. The factory overhead rate is ` 10 per man-hour actually worked. The cost of production for the product for Vishnu is ` 7,280 & for Shiva it is ` 7,600. Find the normal rate of wages; the cost of materials.

The existing Incentive system of Alpha Limited is as under:

Normal working week 5 days of 8 hours each plus 3 late shifts of 3 hours each

Rate of Payment	Day work: `160 per hour Late shift: ` 225 per hour
Average output per operator for 49-hours week i.e. including 3 late shifts	120 articles

In order to increase output and eliminate overtime, it was decided to switch on to a system of payment by results. The following information is obtained:

Time-rate (as usual)	:	`160 per hour
Basic time allowed for 15 articles	:	5 hours
Piece-work rate	:	Add 20% to basic piece-rate
Premium Bonus	:	Add 50% to time.

Required:

Prepare a Statement showing hours worked, weekly earnings, number of articles produced and labour cost per article for one operator under the following systems:

- | | | | |
|-----|----------------|-----|-----------------|
| (A) | Existing time- | (B) | Straight piece- |
| | rate | | work |
| (C) | Rowan system | (D) | Halsey premium |
| | | | system. |

Assume that 135 articles are produced in a 40-hour week under straight piece work, Rowan Premium system, and Halsey premium system above and worker earns half the time saved under Halsey premium system.

SINT LTD., a manufacturing Company, is undecided as to what kind of wage scheme should be introduced. The following particulars have been compiled in respect of three workers. Which are under consideration of the management?

	I	II	III
Actual Hours worked	300	100	540
Hourly rate of wages	40	50	60
Production in units			
Product A	210		600
Product B	360		1350
Product C	460	250	
Standard time allowed per unit of each product is Minutes A :-15 B :-20 C :-30			

Required:

Calculate the wages of each worker under:

- (i) Guaranteed hourly rate basis
- (ii) Piece work earning basis, but guaranteed at 75% of basic pay (Guaranteed hourly rate if his earnings are less than 50% of basic pay.)
- (iii) Premium bonus basis where the worker received bonus based on Rowan scheme.

Y Ltd., a manufacturing concern, supplies you the following data relating to the week ending 16th March, 2022 for two workers A and B

	A	B
Work issued (units)	1,500	3,168
Time Allowed	30 minutes per dozen	2 ½ hours per gross (1 gross = 144)
Output rejected (units)	400	568
Basic hourly wages rate	₹ 50	₹ 80
Hours Worked	54	48

Bonus is paid @ $\frac{2}{3}$ of the basic rate for all time and for all output without deductions for rejected output. The working week is 42 hours, the first 6 hours of overtime being paid at time plus $\frac{1}{4}$ and the next 6 hours at time plus $\frac{1}{2}$. Using the above information, compute for each worker

- Amount of bonus earned
- Amount of gross wages
- Direct wages cost per dozen of finished output when over time is worked—

(i) Regularly throughout the year as company's policy due to labour shortage;

and

(ii) Specifically at the customer's request to expedite delivery

Two workmen, Suresh and Umesh, produce the same product using the same material. Their normal wage rate is also the same. Suresh is paid bonus according to the Rowan system, while Umesh is paid bonus according to the Halsey system. The time allowed to make the product is 25 hours. Suresh takes 15 hours while Umesh takes 20 hours to complete the product. The factory overhead rate is Rs 5 per man-hour actually worked. The factory cost for the product for Suresh is Rs 1,745 and for Umesh it is Rs 1,800.

- (i) What is the amount of normal rate of wages per hour?
- (ii) The cost of materials would be how much? [2]
- (iii) What is the amount of wages payable to workmen Suresh ?

- (b) M/s Peacock Ltd. is in the process of evaluation of employees' welfare scheme of the company. In this regard, it has selected three workers – K, L, and M to study their wage earnings. The company furnishes the following particulars for the month of April, 2023 as under:

	K	L	M
(a) Job completed (Units)	10,000	8,000	14,400
(b) Out of above output rejected and unsaleable (Units)	400	160	1,600
(c) Time allowed for 100 units	2 Hrs. 36 Min.	3 Hrs.	1 Hr. 30 Min.
(d) Basic wage rate per hour (₹)	25	40	30
(e) Time taken (Hours)	200	216	184

The normal working hours per month are fixed at 176 hours. Bonus is paid @ 60% of the basic wage rate for gross time worked and gross output produced without deduction for rejected output. The rate of overtime for first 20 hours is paid at time plus 1/3 and for next 20 hours is paid at time plus 1/2.

From the above information, you are asked by the management to calculate the following for each worker:

- Number of bonus hours and amount of bonus earned;
- Total wages earned including basic wages, overtime premium and bonus;
- Direct wages cost per 100 saleable units.

DIRECT EXPENSE

Royalty or technical know-how fees, or drawing designing fees, are paid for which the benefit is ensured in the future period. In such case, the production / service volumes shall be estimated for the effective period and based on volume achieved during the cost accounting period, the charge for amortization be determined.

Illustration

Royalty paid on sales ` 30,000; Royalty paid on units produced ` 20,000, Hire charges of equipment used for production ` 2,000, Design charges ` 15,000, Software development charges related to production ` 22,000. Compute the direct expenses.

Illustration

A manufacturing unit produces two products X and Y. the following information is furnished:

Particulars	Product X	Product Y
Units produced (quantity)	20,000	15,000
Units sold (quantity)	15,000	12,000
Machine Hours utilized	10,000	5,000
Design charges	15,000	18,000
Software development charges	24,000	36,000

Royalty paid on sales ` 54,000 [@ ` 2 per unit sold, for both the products]; Royalty paid on units produced ` 35,000 [@ ` 1 per unit produced, for both the products], Hire charges of equipment used in manufacturing process of Product X only ` 5,000. Compute the direct expenses.



OPERATING COSTING

TRANSPORTATION

A. DISTANCE TRAVELLED, PASSENGER KM

Distance / trip – 80 km, Round trips / day – 3, No of days / month - 27

Seating capacity – 50 passengers out of which 80% is occupied

B. FUEL COST

Mileage – 15km / Ltr, Fuel rate – Rs 75 / Ltr

C. COMMISSION AS A % OF TAKINGS

Total Cost excluding commission – Rs 100,000. Commission – 5% of takings, Profit – 20% of takings



You have been given a permit to run a bus on a route 20 Km. long. The bus costs you ` 90,000. It has to be insured @ 3% p.a. and the annual tax will be ` 1,000. Garage rent is ` 100 p.m. Annual repairs will be ` 1,000 and the bus is likely to last for 5 years at the end of which the scrap value is likely to be ` 6,000.

The driver's salary will be ` 150 p.m. and the conductor's ` 100 p.m. together with 10% of the takings as commission (to be shared equally by both). Stationery will cost ` 50 p.m. The manager-cum-accountant's salary will be ` 350 p.m.

Diesel and oil be ` 25 per hundred kilometres. The bus will make 3 round trips for carrying on the average 40 passengers on each trip. Assuming 15% profit on takings, calculate the bus fare to be charged from each passenger. The bus will work on the average 25 days in a month.

A transport service company is running five buses between two towns, which are 50 kilometers apart. Seating capacity of each bus is 50 passengers. The following particulars are obtained from their books for April 2022

Particulars	Amounts ₹
Wage of drivers, conductors and cleaners	2,40,000
Salaries of office staff	1,00,000
Diesel oil and other oil	3,50,000
Repairs and maintenance	80,000
Taxation, insurance etc.	1,60,000
Depreciation	2,60,000
Interest and other expenses	2,00,000
Total	13,90,000

Actually, passengers carried were 75% of seating capacity. All buses ran on all day of the month. Each bus made one round trip per day. Calculate out the cost per passenger kilo meter

ASK Institute is a school having five buses each plying in different directions for the transport of its school students. In view of a larger number of students availing of the bus service the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The work-load of the students has been so arranged that in the morning the first trip picks up senior students and the second trip plying an hour later picks up the junior students. Similarly, in the afternoon the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus one way is 8 km. The school works 25 days in a month and remains closed for vacation in May, June and December. Bus fee, however, is payable by the students for all 12 months in a year.

The details of expenses for a year are as under:

Driver's salary	₹4,500 per month per driver
Cleaner's salary	₹3,500 per month (Salary payable for all 12 months)
(one cleaner employed for all the five buses)	
Licence fee, taxes, etc.	₹ 8,600 per bus per annum
Insurance	₹10,000 per bus per annum
Repairs & maintenance	₹35,000 per bus per annum
Purchase price of the bus	₹15,00,000 each
Life of each bus	12 years
Scrap value of buses at the end of life	₹3,00,000
Diesel cost	₹45.00 per litre

Each bus gives an average mileage of 4 km. per litre of diesel. Seating capacity of each bus is 50 students.

The seating capacity is fully occupied during the whole year.

Students picked up and dropped within a range up to 4 km. of distance from the school are charged half fare and fifty per cent of the students travelling in each trip are in this category. Ignore interest. Since the charges are to be based on average cost you are required to:

- (i) Prepare a statement showing the expenses of operating a single bus and the fleet of five buses for a year.
- (ii) Work out the average cost per student per month in respect of –
 - a. students coming from a distance of up to 4 km. from the school
 - b. students coming from a distance beyond 4 km. from the school

XYZ has started a transport business with a fleet of 10 taxis. The various expenses incurred by him are given below:

Cost of each taxi Rs. 3,00,000.

Salary of Office Staff Rs. 5,000 p.m.

Salary of Garage's Supervisor Rs. 10,000 p.m.

Rent of Garage Rs. 5,000 p.m.

Drivers Salary (per taxi) Rs. 10,000 p.m.

Road Tax and Repairs per taxi Rs. 6,000 p.a.

Insurance premium @ 6% of cost p.a.

The life of a taxi is 3,00,000 Km and at the end of which it is estimated to be sold at Rs. 25,000. A taxi runs on an average 6,000 Km. per month of which 10% it runs empty, petrol consumption 11 Km. per litre of petrol costing Rs. 72 per litre. Oil and other sundry expenses amount to Rs. 50 per 100 Km.

- (i) Calculate the fixed expenses per k.m.
- (ii) Calculate the effective cost of running a taxi per kilometre.
- (iii) If the hire charge is Rs. 13 per kilometre on average, find out the profit/loss that XYZ may expect to make in the first year of operation

D. ABSOLUTE TON-KM VS COMMERCIAL TON-KM

A lorry starts with a load of 24 tones of goods from station A. it unloads 10 tones at station B & rest of goods at station C. It reaches back directly to station A after getting reloaded with 18 tones of goods at station C. The distance between A to B, B to C and then from C to A are 270 Kms, 150 Kms & 325 Kms respectively. Compute 'absolute tones Kms' & 'Commercial tones-Kms'.

GTC has a lorry of 6-ton carrying capacity. Distance between the city 'A' to 'B' is 300 km and distance from city 'A' to 'C' is 140 km. In the month of January, the truck made 12 journeys between city 'A' and city 'B'. The details of journeys are as follows:

Outward journey	No. of journeys	Load (in ton)
'A' to 'B'	10	6
'A' to 'C'	2	6
'C' to 'B'	2	4
Return journey	No. of journeys	Load (in ton)
'B' to 'A'	5	8
'B' to 'A'	6	6
'B' to 'C'	1	6
'C' to 'A'	1	0

Rajput Transport Service is a Delhi based national goods transport service provider, owning five trucks for this purpose. The cost of running and maintaining these trucks are as follows

Particulars	Amount
Diesel cost	Rs 30 per km.
Engine oil	Rs 8,400 for every 28,000 km.
Repair and maintenance	Rs 24,000 for every 20,000 km.
Driver's salary	Rs 40,000 per truck per month
Cleaner's salary	Rs 14,000 per truck per month
Supervision and other general expenses	Rs 30,000 per month
Cost of loading of goods	Rs 400 per Metric Ton (MT)

Each truck was purchased for Rs. 30 lakh with an estimated life of 7,20,000 km. During the next month, it is expecting 6 bookings, the details of which are as follows

Sl. No.	Journey	Distance (in km)	Weight- Up (in MT)	Weight- Down (in MT)
1.	Delhi to Kochi	2,700	15	7
2.	Delhi to Guwahati	1,890	13	0
3.	Delhi to Vijayawada	1,840	16	0
4.	Delhi to Varanasi	815	11	0
5.	Delhi to Asansol	1,280	13	5
6.	Delhi to Chennai	2,185	11	9
	Total	10,710	79	21

- What is the total absolute Ton-km for the next month?
- The cost per ton-km would be how much ?

HOTEL – CALCULATION OF RATE

A. ROOM-WISE RATE

The rent of double rooms suite is to be fixed at 2.5 times of the single room suite and that of triple rooms suite as twice of the double rooms suite.

Type of suite	Number	Occupancy percentage
Single room	100	100%
Double rooms	50	80%
Triple rooms	30	60%
Revenue – Rs 25,41,000.		

CATEGORY	NO OF ROOMS	OCCUPANCY	NO OF DAYS	RATE	REVENUE

B. SEASON-WISE RATE

A lodging home is being run in a small hill station with 50 single rooms. The home offers concession rates during six off-seasons months in a year. During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. Occupancy during the season is 80%, while in the off season is 40% only, assume a month to be of 30 days. Revenue – Rs 1773000

CATEGORY	NO OF ROOMS	OCCUPANCY	NO OF DAYS	RATE	REVENUE

Illustration

XYZ Ltd runs a holiday home. For this purpose, it has hired a building at a rent of ₹ 10,000 per month along with 5% of total taking. It has three types of suites for its customers, viz., single room, double rooms and triple rooms.

Following information is available:

Type of Suite	Number	Percentage of Occupancy
Single Room	100	100%
Double Rooms	50	80%
Triple Rooms	30	60%

The rent of double rooms suite is to be fixed at 2.5 times of the single room suite and that of triple rooms suite as twice of the double rooms suite.

Particulars	₹
Staff salaries	14,25,000
Room attendants' wages	4,50,000
Lighting, heating and power	2,15,000
Repairs and renovation	1,23,500
Laundry charges	80,500
Interior decoration	74,000
Sundries	1,53,000

Provide profit @ 20% on total taking and assume 360 days in a year.

Calculate the rent to be charged for each type of suite.

Illustration

Manar lodging home is being run in a small hill station with 50 single rooms. The home offers concessional rates during six-off season months in a year. During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending on 31st March, 2022. [Assume a month to be of 30 days].

- (i) Occupancy during the season is 80% while in the off season it is 40% only.
- (ii) Expenses:

Staff salary [Excluding room attendants]	₹ 2,75,000
Repairs to building	₹ 1,30,500
Laundry and linen	₹ 40,000
Interior and tapestry	₹ 87,500
Sundry expenses	₹ 95,400
- (iii) Annual depreciation is to be provided for buildings @ 5% and on furniture and equipments @ 15% on straightline basis.
- (iv) Room attendants are paid ₹ 5 per room day on the basis of occupancy of the rooms in a month.
- (v) Monthly lighting charges are ₹ 120 per room, except in four months in winter when it is ₹ 30 per room and this cost is on the basis of full occupancy for a month.
- (vi) Total investment in the home is ₹ 100 lakhs of which ₹ 80 lakhs relate to buildings and balance for furniture and equipments.

You are required to work out the room rent chargeable per day both during the season and the off-season months on the basis of the foregoing information

HOSPITAL

ABC Hospital runs a Critical Care Unit (CCU) in a hired building. CCU consists of 35 beds and 5 more beds can be added, if required.

Rent per month -	₹ 75,000
Supervisors – 2 persons –	₹ 25,000 per month – each
Nurses – 4 persons –	₹ 20,000 per month – each
Ward Boys – 4 persons –	₹ 5,000 per month – each

Doctors paid ₹ 2,50,000 per month – paid on the basis of number of patients attended and the time spent by them

Other expenses for the year are as follows:

Repairs (Fixed) –	₹ 81,000
Food to Patients (Variable) –	₹ 8,80,000
Other services to patients (Variable) –	₹ 3,00,000
Laundry charges (Variable) –	₹ 6,00,000
Medicines (Variable) –	₹ 7,50,000
Other fixed expenses –	₹ 10,80,000
Administration expenses allocated –	₹ 10,00,000

It was estimated that for 150 days in a year 35 beds are occupied and for 80 days only 25 beds are occupied.

The hospital hired 750 beds at a charge of ₹ 100 per bed per day, to accommodate the flow of patients. However, this does not exceed more than 5 extra beds over and above the normal capacity of 35 beds on any day.

You are required to calculate profit per Patient day, if the hospital recovers on an average ₹ 2,000 per day from each patient

MEDCO HEALTH CARE runs an intensive Medical Care Unit. For this purpose, it has hired a building at a rent of 50,000 per month with the agreement to bear the repairs and maintenance charges also.

The unit consists of 100 beds and 5 more beds can comfortably be accommodated when the situation demands. Though the unit is open for patients all the 365 days in a year, scrutiny of accounts for the year 2022 reveals that only for 120 days in the year, the unit had the full capacity of 100 patients per day and for another 80 days, it had, on an average only 40 beds occupied per day. But there were occasions when the beds were full, extra beds were hired at a charge of 50 per bed per day. This did not come to more than 5 beds above the normal capacity on any one day. The total hire charges for the extra beds incurred for the whole year amounted to 20000.

The unit engaged expert doctors from outside to attend on the patients and the fees were paid on the basis of the number of patients attended and time spent by them which on an average worked out to 30,000 per month in the year 2022.

The permanent staff expenses and other expenses of the unit were as follows:

2 Supervisors each at a per month salary of	5000
4 nurses each at a per month salary of	3000
2 ward boys each at a per month salary of	1500
Other expenses for the year were as under:	
Repairs and Maintenance	28000
Food supplied to patients	440000
Caretaker and other services for patients	125000
Laundry charges for bed linen	140000
Medicines supplied	280000
Cost of Oxygen etc. other than directly borne for treatment of patients	71000
General Administration Charges allocated to the unit	

REQUIRED :-

(i) What is the profit per patient day made by the unit in the year 2022 if the unit recovered an overall amount of 200 per day on an average from each patient.

(ii) The unit wants to work on a budget for the year 2023, but the number of patients requiring medical care is a very uncertain factor. Assuming that same revenue and expenses prevail in the year 2023 in the first instance, work out the number of patient days required by the unit to break even



OVERHEAD

PRIMARY DISTRIBUTION – ALLOCATION, APPORTIONMENT

Particulars	Basis	Production Department		Service Department		Total
		PD1	PD2	SD1	SD2	
Direct Material	Allocation	-----	-----	xx	xx	xx
Direct Wages	Allocation	-----	-----	xx	xx	xx
Direct Expenses	Allocation	-----	-----	xx	xx	xx
Other expenses	Allocation	xx	xx	xx	xx	xx
Power	HP/ KWH	xx	xx	xx	xx	xx
Rent & rates	Area / Floor space	xx	xx	xx	xx	xx
Depreciation / Insurance / R&M on plant	Value of plant	xx	xx	xx	xx	xx
General Lighting	No of light points	xx	xx	xx	xx	xx
Depreciation / R&M on building	Area	xx	xx	xx	xx	xx
Indirect wages	Direct Wages	xx	xx	xx	xx	xx
Stores Expenses	Direct Material	xx	xx	xx	xx	xx
Employee related expenses	No of employees	xx	xx	Xx	xx	xx
Total		xx	xx	Xx	xx	xx

SECONDARY DISTRIBUTION – REAPPORTIONMENT

A. DIRECT DISTRIBUTION METHOD

Particulars	Basis	Production Department		Service Department		Total
		PD1	PD2	SD1	SD2	
Total overhead after primary distribution		Xx	Xx	Xx	Xx	xx
Reapportionment:						
SD1	Given	Xx	Xx	(xx)	0	0
SD2	Given	Xx	Xx	0	(xx)	0
Total		xx	xx	0	0	Xx

B. RECIPROCAL BASIS

REPEATED DISTRIBUTION METHOD

Particulars	Basis	Production Department		Service Department		Total
		PD1	PD2	SD1	SD2	
Total overhead after primary distribution		50000	40000	30000	20000	140000
Reapportionment:						
SD1	5:3:2					
SD2	4:3:3					
SD1	5:3:2					
SD2	4:3:3					
SD1	5:3:2					
SD2	4:3:3					
Total						

SIMULTANEOUS EQUATION METHOD

Particulars	Basis	Production Department		Service Department		Total
		PD1	PD2	SD1	SD2	
Total overhead after primary distribution		50000	40000	30000	20000	140000
Reapportionment:						
SD1	5:3:2					
SD2	4:3:3					
Total						

C. NON RECIPROCAL BASIS / STEP DOWN METHOD / STEP LADDER METHOD

Particulars	Basis	Production Department		Service Department		
		PD1	PD2	SD1	SD2	SD3
Total overhead after primary distribution		Xx	Xx	Xx	Xx	xx
Reapportionment:						
SD1	Given	Xx	Xx	(xx)	XX	XX
SD2	Given	Xx	Xx	0	(xx)	XX
SD3	Given	Xx	Xx	0	0	(xx)
Total		xx	xx	0	0	0

OVERHEAD RECOVERY / ABSORPTION RATE

BASIS	FORMULA
NO OF UNITS	
DIRECT MATERIAL COST	
DIRECT WAGES COST	
PRIME COST	
LABOUR HOUR	
MACHINE HOUR	

SINGLE / BLANKET OVERHEAD RECOVERY RATE

MULTIPLE / DEPARTAMENTAL RECOVERY RATE



OVERHEAD RECOVERED / ABSORBED / APPLIED / CHARGED

BUDGETED OVERHEAD – RS 10,00,000

BUDGETED MACHINE HOUR – 200,000

ACTUAL MACHINE HOUR – 190,000

ACTUAL OVERHEAD INCURRED – RS 970,000

UNDER / OVER RECOVERY OF OVERHEAD

NORMAL RATE INCREASE

ABNORMAL REASON

(EG. DEFECTIVE PRODUCTION POLICY)

USING SUPPLEMENTARY RATE, APPORTION

TRANSFERRED TO COSTING PL

BETWEEN FG SOLD, CLOSING FG, CLOSING WIP

MACHINE HOUR RATE

FIXED / STANDING EXPENSES

RENT

LIGHTING CHARGES

INDIRECT WAGES

MANAGER SALARY

DEPARTMENTAL EXPENSES

DEPRECIATION (ON FIXED TIME BASIS)

VARIABLE / RUNNING CHARGES

POWER

REPAIR & MAINTENANCE

CHEMICAL, COOLANTS

LUBRICANTS

DEPRECIATION (ON HOUR BASIS)

EFFECTIVE MACHINE HOUR = TOTAL MACHINE HOUR – SET UP TIME – REPAIR & MAINTENANCE TIME

****SET UP TIME AND REPAIR & MAINTENANCE TIME WILL BE REDUCED ONLY WHEN IT IS**

UNPRODUCTIVE IN NATURE AND **NORMAL** IN NATURE

TWO-TIER MACHINE HOUR RATE

FIXED / STANDING EXPENSES

Base – Running time + set up time

VARIABLE / RUNNING CHARGES

Base – Running time

Calculate machine hour rate from the following information:

Cost of machine -	₹25,00,000
Salvage value -	₹1,25,000
Estimated life of the machine -	10 years
Annual working hours	3,000
Repairs and maintenance hours	400
Setting-up time (productive time)	156

Power used 25 units per hour at a cost of ₹5 per unit. No power used during maintenance and set-up time.

Cost of repairs and maintenance is ₹26,000 p.a.

Chemical required for operating the machine is ₹2,600 per annum.

Annual insurance charges 2.5 % of cost of machine.

Light charges for the department is ₹3,300 per month, having 96 points in all, out of which 12 points are used at this machine.

Other indirect expenses are chargeable to the machine are ₹7,200 per month.

Wages of an operator is ₹9,500 per month. The operator, devoted one-fifth of his time to the machine.



The company has purchased a new machine costing ₹25,40,000 to the group of 9 existing machines. The estimated life of new machine is 10 years with salvage value of ₹1,40,000 at the end of its working life. Additional information:

- (i) Budgeted working hours are 2,592 based on 8 hours per day for 324 days. This includes 210 hours for plant maintenance and 182 hours for setting up of plant.
- (ii) Power used by the machine @ 32 units per hour at a cost of ₹2.50 per unit. No power is consumed during maintenance and setting up.
- (iii) Five operators control operation of 10 machines and the wages amounts to ₹2,500 per week per person plus 12% fringe benefits.
- (iv) The machine requires a chemical solution, which is replaced at the end of each week (6 days in a week) at a cost of ₹750 each time.
- (v) Maintenance of the machine is ₹62,500 p.a.
- (vi) Departmental overhead allocated to the operation last year was ₹112,500. During the current year it is estimated to increase 10% of this amount.

Calculate machine hour rate, if (a) setting up time is unproductive; (b) setting up time is productive



A machine shop has 8 identical machines manned by 6 operators. The machine cannot be worked without an operator wholly engaged on it. The original cost of all these machines works out to ₹8 lakhs. These particulars are furnished for a 6 month period:

Normal available hours per month per worker	208
Absenteeism (without pay) hours P.M. per worker	18
Leave (with pay) hours per worker P.M	20
Normal idle time Unavoidable hours per worker P.M.	10
Average rate of wages per worker for 8 hours a day	₹20
Average rate of production bonus estimated	15% on wages
Value of Power consumed	₹8,050
Supervision and indirect labour	₹3,300
Lighting and electricity	₹4,200
These particulars are for a year :	
Repairs and maintenance including consumables	3% of value of machines
Insurance	₹40,000
Depreciation	10% of original cost
Other sundry works expenses	₹12,000
General management expenses allocated	₹54,530

You are required to work out a comprehensive machine hour rate for the machine shop.



Calculate two - tier machine hour rate for (a) set up time, and (b) running time from the following information:

Details regarding Machinery:

Cost of the machine ₹7,50,000

Estimated useful Life 15 years

Salvage value ₹30,000.

The supervisor and operator are permanent whose salary is as:

Supervisor's salary per month (common to four machines) ₹12,000

Operator wages per month per machine ₹3,750

Repairs and maintenance and consumable stores vary with the machine hours.

Repairs and maintenance per annum ₹90,720

Consumable stores per annum ₹71,280

Power is required for productive purposes. Set up time, though productive, does not require power.

Power 15 units per hour at 5 per unit

Other expenses:

Rent of building p.a. (machine under reference occupies 1/5th of the area) 90,000

General lighting charges per month allocated to the machine 1,500

The machine is considered to work for 312 hours in a month. It includes maintenance time of 12 hours and set up time of 30 hours.



The budgeted production overheads of the factory are `4,20,000 and budgeted machine hours are 40,000. For financial year 2018-19, following information were extracted from the books:

Actual production overheads	6,35,000
Amount included in the production overheads:	
Obsolete stores written off	18,000
Paid as per court's order	11,000
Paid to workers for strike period under an award	32,000
Expenses of previous year booked in current year	10,000
Production and sales data of the concern are as under:	
Production:	
Finished goods	44,000 units
WIP (50% complete in every respect)	32,000 units
Sales:	
Finished goods	36,000 units

The actual machine hours worked during the period were 48,000 hrs. it is revealed from the analysis of information that $\frac{1}{4}$ of the under-absorption was due to defective production policies and the balance was attributable to increase in costs.

You are required:

- (i) To determine the amount of under absorption of production overheads for the period.
- (ii) To show the accounting treatment of under-absorption of production overheads, and
- (iii) To apportion the unabsorbed overheads over the items.



APP is a manufacturing concern and recovers overheads at a predetermined rate of ` 30 per labour hour.

Information relating to 2018-19 is as under:

Actual overheads incurred	`51,50,000
(includes 'written off' obsolete stores `20,000 and wages paid for the strike period `30,000)	
Actual labour hours worked	1.50,000
Sales (units)	50,000 units
Stocks at the end of the period:	
Finished goods	5,000 units
Work-in-progress (50% completed)	10,000 units

On analyzing the situation, it was discovered that 60% of the under-absorption of overheads was due to defective production planning and the balance was due to normal increase in overhead costs.

How would you treat under absorbed overhead in Cost Accounting.

Following data are extracted from the records of the company:

	P1	P2	P3	S1	S2
Direct Material (₹)	75,000	50,000	75,000	37,500	12,500
Number of light points	50	75	100	50	25
Cost of machinery (₹)	4,50,000	6,00,000	7,50,000	37,500	37,500
Production hours worked	5,000	4,000	4,500	--	--
HP of Machine used	30	15	25	5	--
Floor space (sq.ft)	500	625	750	500	125

Rent & Rates	25,000	General lighting	42,000
Stores expenses	60,000	Power	45,000
Depreciation on machinery	70,000	Insurance of machinery	28,000

Other Information:

Expenses of the service departments S1 and S2 are reapportioned as below:

	P1	P2	P3	S1	S2
S1	40%	20%	30%	--	10%
S2	30%	50%	10%	10%	--

(i) Compute overhead absorption rate per production hour of each production department.

(ii) Determine the total cost of product X which is processed for manufacture in department P1, P2 and P3 for 9 hours, 12 hours and 14 hours respectively, given that its direct material cost is ₹ 500 and direct labour cost is ₹ 450.

An engine manufacturing company has two production departments:

(i) Snow mobile engine and ;

(ii) Boat engine and Two service departments: (i) Maintenance and (ii) Factory office.

Budgeted cost data and relevant cost drivers are as follows:

Departmental costs:

Snow mobile engine	6,00,000
Boat mobile engine	17,50,000
Factory office	3,00,000
Maintenance	2,40,000

Cost drivers:

Factory office department:	No. of employees
Snow mobile engine department	1,080 employees
Boat engine department	270 employees
Maintenance department	150 employees
	1,500 employees
Maintenance department:	No. of work orders
Snow mobile engine department	570 orders
Boat engine department	190 orders
Factory office department	40 orders
	800 orders

Required

- Compute the cost driver allocation percentage and then use these percentage to allocated the service department costs by using direct method.
- Compute the cost driver allocation percentage and then use these percentage to allocate the service dept. costs by using non-reciprocal method/step method.

Illustration

Helping Hand Ltd gensets and produced its own power Data for power costs are as follows:

	Production Departments		Service Departments	
	A	B	X	Y
Horse Power Hours	10,000	20,000	12,000	8,000
Needed at capacity production used during the month of May	8,000	13,000	7,000	6,000

During the month of May costs for generating power amounted to ` 9,300, of this ` 2,500 was considered to be fixed. Department X renders service to other Departments in the ratio of 13 : 6 : 1, while Y renders service to A and B in the ratio of 31 : 3. Given that the direct labour hours in Departments A and B are 1,650 hours and 2,175 hours respectively, find the power cost per labour in each of these two departments.

SONTA LTD. has three production departments and two service departments. The overhead distribution sheet showed the following:

Production Departments:

	Rs
MP	25000
BQ	31000
NR	28000

Service Departments:

S	8000
T	13900

Using the following bases of apportionment, distribute the cost of service departments under simultaneously Equation Method

	MP	BQ	NR	S	T
Department S	30%	20%	40%		10%
Department T	40%	15%	25%	20%	

A Company has three production cost centers A, B and C are two service cost centres X and Y. Cost allocated to service centres are required to be apportioned to the production centres to find out cost of production of different products.

It is found that benefit of service cost centres is also received by each other along with production cost centres.

Overhead cost as allocated to the five cost centres and estimates of benefit of service cost centres received by each of them are as under

Cost Centres	Overhead costs as allocated	Estimates of benefits received from service centres (%)	
		X	Y
A	80,000	20	20
B	40,000	30	25
C	20,000	40	50
X	20,000	--	5
Y	10,000	10	-

Required :-

Compute the final overhead costs of each of the production department including reapportioned cost of service centres using –

- (A) Continuous distribution method and
- (B) Simultaneous equation method

Ashima Manufacturing Ltd. have three departments which are regarded as production departments. Service departments' costs are distributed to these production departments using the 'Step Distribution Method' of distribution. Estimates of factory overhead costs to be incurred by each department in the forthcoming year as follows. Data required for distribution is also shown against each department.

Department	Factory Overhead (₹)	Direct labour hours	No. of Employees	Area in sq. m.
Production:				
X	93,000	4,000	100	3,000
Y	54,000	3,000	125	1,500
Z	73,000	4,000	85	1,500
Service:				
P	45,000	1,000	10	500
Q	75,000	5,000	50	1,500
R	1,05,000	6,000	40	1,000
S	30,000	3,000	50	1,000

The overhead costs of the four service departments are distributed in the same order, viz. P, Q, R and S respectively on the following basis

Department	Basis
P	Number of employees
Q	Direct labour hours
R	Area in square metres
S	Direct labour hours

You are required to:

1. Prepare a schedule showing the distribution of overhead costs of the four service departments to the three production departments; and
2. Calculate the overhead recovery rate per direct labour hour for each of the three production departments

On the basis of the following data, determine the overhead rates at 70% and 80%.

Particulars	Amount (Rs.)
Production capacity	At 80%
Variable Overheads:	capacity
Indirect labour	12,000
Stores including spares	4,000
Semi Variable:	
Power (30% - Fixed: 70% -Variable)	20,000
Repairs (60%- Fixed: 40% -Variable)	2,000
Fixed Overheads:	
Depreciation	11,000
Insurance	3,000
Salaries	10,000
Total overheads	62,000
Estimated Direct Labour Hours	1,24,000

A company has two production departments and two service departments. The data relating to a period are as under:

Production Departments			Service Departments		
		PD 1	PD 2	SD1	SD2
Direct Materials	(₹)	80,000	40,000	20,000	30,000
Direct Wages	(₹)	95,000	50,000	30,000	20,000
Overheads	(₹)	80,000	50,000	40,000	30,000
Power Requirement at Normal capacity operations	(Kwh)	25,000	30,000	15,000	10,000
Actual power consumption during the period	(Kwh)	12,000	20,000	8,000	12,000

The power requirement of these departments is met by a power generation plant. The said plant incurred an expenditure, which is not included above, of ₹1,21,875 out of which a sum of ₹84,375 was variable and the rest fixed.

After apportionment of power generation plant costs to the four departments, the service department overheads are to be redistributed on the following bases

	PD1	PD2	SD1	SD2
SD1	50%	40%	-	10%
SD2	60%	20%	20%	-

You are required to:

- What is the total O/ H of each of the departments?
- What is the total O/ H post re-apportionment of service Department Cost?

JOB & BATCH COSTING

BATCH COSTING

$$EBQ = \frac{2AS}{C}$$

"A" denotes Annual demand of finished goods.

"S" denotes Set-up Cost/batch

"C" denotes carrying cost per unit per annum

If carrying cost is expressed as a %, then it should be applied as a % on cost of production per unit to calculate "C"

EVALUATION OF ALTERNATIVES (EBQ VS NON-EBQ)

		EOQ	ALT 1	ALT 2
Annual demand of FG	a	Will be given in the qsn		
Quantity / batch	b	We will calculate	Will be given in the qsn	
c. No of batches	a / b			
d. Setup cost	c X Setup / batch			
e. Carrying cost	b / 2 X Carrying cost pupa			
f. Total cost	e+f+g			

Frequency of starting the batch = 360 / No of batches

JOB COSTING

PREPARATION OF JOB COST SHEET

STEP 1 – DIRECT MATERIAL, DIRECT WAGES AND DIRECT EXPENSES IS TRACEABLE TO THE JOB

STEP 2 – OVERHEAD TO BE CALCULATED AS –

OVERHEAD	BASIS	FORMULA
FACTORY OVERHEAD	DIRECT WAGES	$\frac{\text{FACTORY OVERHEAD}}{\text{DIRECT WAGES}} \times 100$
OFFICE & ADMIN OVERHEAD	COST OF PRODUCTION	$\frac{\text{OFFICE \& ADMIN O/H}}{\text{COST OF PRODUCTION}} \times 100$
SELLING & DISTRIBUTION OVERHEAD	COST OF PRODUCTION	$\frac{\text{SELLING \& DIST O/H}}{\text{COST OF PRODUCTION}} \times 100$

NOTE :

1. OFFICE & ADMIN OVERHEAD IS ASSUMED TO BE MARKETING IN NATURE, HENCE DOES NOT FORM PART OF COST OF PRODUCTION
2. FACTORY OVERHEAD RECOVERY RATE IS CALCULATED ON DEPARTMENTAL BASIS INSTEAD OF BLANKET BASIS.

A Ltd. is committed to supply 24,000 bearings p.a. to B Ltd. on a steady basis. It is estimated that it costs 10 paise as inventory holding cost per bearing per month and that the set-up cost per run of bearing manufacture is ₹ 324. What should be the optimum run size for bearing manufacture? What would be the interval between two consecutive optimum runs?

M/s. KBC Bearings Ltd. is committed to supply 48,000 bearings per annum to M/s. KMR Fans on a steady daily basis. It is estimated that it costs ₹ 1 as inventory holding cost per bearing per month and that the set up cost per run of bearing manufacture is ₹ 3,200

- (i) DETERMINE what would be the optimum run size of bearing manufacture?
- (ii) DETERMINE What would be the interval between two consecutive optimum runs?
- (iii) CALCULATE the inventory carrying cost at EBQ?

Arnav Motors Ltd. manufactures pistons used in car engines. As per the study conducted by the Auto Parts Manufacturers Association, there will be a demand of 80 million pistons in the coming year. Arnav Motors Ltd. is expected to have a market share of 1.15% of the total market demand of the pistons in the coming year. It is estimated that it costs ₹ 1.50 as inventory holding cost per piston per month and that the set-up cost per run of piston manufacture is ₹ 3,500.

- (i) DETERMINE the optimum run size for piston manufacturing?
- (ii) Assuming that the company has a policy of manufacturing 40,000 pistons per run, CALCULATE the extra costs company would be incurring as compared to the optimum run suggested in (i) above?

A customer has been ordering 90,000 special design metal columns at the rate of 18,000 columns per order during the past years. The production cost comprises ` 2,120 for material, ` 60 for labour and ` 20 for fixed overheads. It costs ` 1,500 to set up for one run and inventory carrying cost is 5%.

- (i) Find the most economic production run.
- (ii) Calculate the extra cost that company incur due to processing of 18,000 columns in a batch.

Arnav Confectioners (AC) owns a bakery which is used to make bakery items like pastries, cakes and muffins. AC use to bake at least 50 units of any item at a time. A customer has given an order for 600 muffins. To process a batch of 50 muffins, the following cost would be incurred:

Direct materials-	` 500	
Direct wages-	` 50	} Irrespective of no of units
Oven set- up cost	` 150	

AC absorbs production overheads at a rate of 20% of direct wages cost. 10% is added to the total production cost of each batch to allow for selling, distribution and administration overheads. AC requires a profit margin of 25% of sales value. Determine the selling price for 600 and 605 muffins

Illu - A factory uses job costing. The following data are obtained from its books for the year ended 31st March, 2018:

	Amount (₹)
Direct materials	9,00,000
Direct wages	7,50,000
Selling and distribution overheads	5,25,000
Administration overheads	4,20,000
Factory overheads	4,50,000
Profit	6,09,000

Required:

(i) PREPARE a Job Cost sheet indicating the Prime cost, Cost of Production, Cost of sales and the Sales value.

(ii) In 2018-19, the factory received an order for a job. It is estimated that direct materials required will be ₹2,40,000 and direct labour will cost ₹1,50,000. DETERMINE what should be the price for the job if factory intends to earn the same rate of profit on sales assuming that the selling and distribution overheads have gone up by 15%. The factory overheads is recovered as percentage of wages paid, whereas, other overheads as a percentage of cost of production, based on cost rates prevailing in the previous year.

Illu - A shop floor supervisor of a small factory presented the following cost for Job No. 303, to determine the selling price.

Materials	70
Direct wages 18 hours @ ` 2.50 (Deptt. X 8 hours; Deptt. Y 6 hours; Deptt. Z 4 hours)	45
Chargeable expenses	5
	120
Add : 33-1/3 % for expenses cost	40
	160

Materials used	1,50,000	Sales less returns	2,50,000
Direct wages :			
Deptt. X 10,000			
Deptt. Y 12,000			
Deptt. Z 8,000	30,000		
Special stores items	4,000		
Overheads :			
Deptt. X 5,000			
Deptt. Y 9,000			
Deptt. Z 2,000	16,000		
Works cost	2,00,000		
Gross profit c/d	50,000		
	2,50,000		2,50,000
Selling expenses	20,000	Gross profit b/d	50,000
Net profit	30,000		
	50,000		50,000

It is also noted that average hourly rates for the three Departments X, Y and Z are similar.

You are required to :

- Calculate the entire revised cost using 20X2 actual figures as basis.
- Add 20% to total cost to determine selling price.



In a factory following the Job Costing Method, an abstract from the work-in-progress as on 30th September was prepared as under.

Job No.	Materials (`)	Direct hrs.	Labour (`)	Factory OH applied (`)
115	1325	400 hrs.	800	640
118	810	250 hrs.	500	400
120	765	300 hrs.	475	380

Materials used in October were as follows:

Materials Requisition No.	Job No.	Cost (`)
54	118	300
55	118	425
56	118	515
57	120	665
58	121	910
59	124	720

A summary for labour hours deployed during October is as under:

Job No.	Number of Hours	
	Shop A	Shop B
115		25
118		90
120		75
121		65
124		25
Indirect Labour: Waiting of material		20
Machine breakdown	10	
Idle time	5	
Overtime premium	6	

A shop credit slip was issued in October that material issued under Requisition No. 54 was returned back to stores as being not suitable. A material transfer note issued in October indicated that material issued under Requisition No. 55 for Job 118 was directed to Job 124.

The hourly rate in shop A per labour hour is ` 3 per hour while at shop B, it is ` 2 per hour. The factory overhead is applied at the same rate as in September. Job 115, 118 and 120 were completed in October.

You are asked to compute the factory cost of the completed jobs. It is the practice of the management to put a 10% on the factory cost to cover administration and selling overheads and invoice the job to the customer on a total cost plus 20% basis. What would be the invoice price of these three jobs?

Illustration

Component 'Gold' is made entirely in cost centre 100. Material cost is 6 paise per component and each component takes 10 minutes to produce. The machine operator is paid 72 paise per hour, and machine hour rate is ₹ 1.50. The setting up of the machine to produce the component 'Gold' takes 2 hours 20 minutes.

On the basis of this information, prepare a cost sheet showing the production and setting up cost, both in total and per component, assuming that a batch of: (a) 10 components, (b) 100 components, and (c) 1,000 components are produced.

In the current quarter, ABC company has undertaken two jobs. The data relating to these jobs are as under

	Job A	Job B
Selling price	₹ 1,07,325	₹ 1,57,920
Profit as percentage on cost	8%	12%
Direct Materials	₹ 37,500	₹ 54,000
Direct wages	₹ 30,000	₹ 42,000

It is the policy of the company to charge Factory overheads as percentage on direct wages and selling and administration overheads as percentage on Factory Cost.

The company has received a new order for manufacturing of a similar job. The estimate of direct materials and direct wages relating to the new order are ₹ 75,000 and ₹ 50,000 respectively. A profit of 20% on sales is required. You are required to compute:

- (i) The rates of Factory overheads and selling and Administration overheads to be charged.
- (ii) The selling price of the new order

A Ltd . undertakes to supply 1,000 units of a component per month of April, May and June. Every month a batch order is opened against which materials and labour costs are booked at actual. Overheads are levied on the basis of labour hours. The selling price is contracted at ₹16 per unit.

From the following data, Calculate the profit per annum of each batch order and the total profit for 3000 units. Labour is paid at the rate of ₹2 per hour. The other details are

Months	Batch Output (Units)	Material Cost (₹)	Labour Cost (₹)	Overheads (₹)	Total Labour (Hours)
January	1,250	6,250	2,500	12,000	4,000
February	1,500	9,000	3,000	9,000	4,500
March	1,000	5,000	2,000	15,000	5,000

The normal expenses attributable to Machine 1 and the normal hours for which the machine is expected to be utilised in the year 2023 are indicated below

Particulars	₹	₹
Fixed Expenses		4,000
Variable:		
Power	1,500	
Repairs	900	
Lubricants	600	3,000
Total		7,000
Predetermined normal hours of working:		
To make ready		200 hours
Running on jobs		800 hours
Total		1,000 hours

From the data furnished below, compute the cost of Job No. 1993:

Materials consumed: 10 units at ₹5 per unit	50
Machine labour:	
To make ready: 2 hours at ₹1 per hour	2
Running on jobs: 8 hours at ₹1 per hour	8
	60

Note: Wherever a job to be put on the machine, the machine is cleared, any tools or jigs already on the machine are removed and new tools, etc. suitable for the particular job are fixed before commissioning the machine for the job and the time involved is to be charged to the job as 'make ready' time. Hence, fixed expenses are absorbed on the basis of total normal working hours & variable expenses are absorbed on the basis of running working hours



BUDGET

FLEXIBLE BUDGET

CLASSIFICATION OF COST

Nature	Description	Total	Per / unit	Change in cost
Fixed Cost	FC remains Constant irrespective of change in no of units	FC in TOTAL remains constant	FC / unit will DECREASE with INCREASE in no of units. FC / unit will INCREASE with DECREASE in no of units.	Any CHANGE to FC should be made in TOTAL .
Variable Cost	VC will change in same proportion with the change in no of units.	TOTAL VC will INCREASE with INCREASE in no of units. TOTAL VC will DECREASE with DECREASE in no of units.	VC / UNIT will remain CONSTANT .	Any CHANGE to VC should be made in VC / UNIT .

Exam Focus:

1. All information relating to **FC** should be made in **TOTAL** and information relating to **VC** should be in **PER Unit** basis.
2. If FC is given as per unit, then total FC = FC / unit X No of units based on which FC / Unit has been calculated
3. If VC is given on total basis, then VC / unit = Total VC / No of units based on which total VC has been calculated

Illustration - 5,000 units (50% capacity)

Fixed cost A	15,000
Fixed Cost B	4/ unit
Variable Cost C	3 / unit
Variable cost D	25,000

Next Year, the company will produce 6,000 units and anticipates Fixed cost A will increase by 7%, Fixed Cost B will decrease by 5%, Variable Cost C will decrease by 8% and Variable cost D will increase by 10%. Calculate total cost of 6,000 units.

	5000 units		4000 units	6000 units
Material cost	35000	100% varying		
Power	2000	80% "		
Repairs & maintenance	3000	75% "		
Depreciation	10,000	100% fixed		
Administration O/H	5400	20% varying		

Semi-Variable cost : Segregation between Fixed cost and Variable cost/ unit

Illu 1 -	<u>No of units</u>	<u>Total cost</u>
	5,000	Rs 15,000
	8,000	Rs 21,000
	12,500	?

Illu 2 -

	55000	65000	75000	85000
Direct Materials	11,00,000	13,00,000	15,00,000	
Direct Labour	5,50,000	6,50,000	7,50,000	
Factory Overheads	3,10,000	3,30,000	3,50,000	
Selling Overheads	3,20,000	3,60,000	4,00,000	
Administrative Overheads	1,60,000	1,60,000	1,60,000	
	24,40,000	28,00,000	31,60,000	

	50%	60%	75%	90%
Fixed Cost	30			
SVC	18			
VC	50			

Assume that the fixed expenses remain constant for all levels of production, semi-variable expenses remain constant between 45 % & 65 % of capacity, increasing by 10 % between 65 % & 80 % capacity and by 20 % between 80 % & 100 % capacity.

FUNCTIONAL BUDGET

STEP	BUDGET	DEPARTMENT	CALCULATION
1	SALES BUDGET	MARKETING	BASED ON ESTIMATED SALES QTY & SP / UNIT (AFTER CONSIDERING CUSTOMER TASTE & PREFERENCE) AND MARKETING EFFORT.
2	PRODUCTION BUDGET	PRODUCTION	QUANTITATIVE TERMS: OPENING FG + PRODUCTION – CLOSING FG = SALES
3	RAW MATERIAL CONSUMED	PRODUCTION	QUANTITATIVE TERMS: RAW MATERIAL CONSUMED = PRODUCTION (UNITS) X RAW MATERIAL USED / UNIT OF PRODN.
4	RAW MATERIAL PURCHASED	STORES	QUANTITATIVE TERMS: OPENING RM + PURCHASE – CLOSING RM = RAW MATERIAL CONSUMED

Illustration –

Estimated Sales qty – 102,000 units

Closing FG – 8,000 units

Opening FG – 10,000 units

Each unit of production required 3 kg of Raw Material A and 4kg of Raw Material B.

	<u>Opening</u>	<u>Closing</u>
Raw Material A (kg)	22,000	28,000
Raw Material B (kg)	37,500	43,400

Illu 2- Sales budget for calendar year 2013 by a quarters is as under:

Quarters	I	II	III	IV
No. of units to be sold	18,000	22,000	25,000	27,000

The year is expected to open with an inventory of 6,000 units of finished products and close with inventory of 8,000 units. Production is customarily scheduled to provide for 70% of the current quarter's sales demand plus 30% of the following quarter demand. Prepare Quarterly Prodn Budget

Illu 3- The Estimated Units To Be Sold In The First Four Months Of The Year 2013-14 Are As Under

	April	May	June	July
Minimax	8,000	10,000	12,000	16,000
Heavyhigh	6,000	8,000	9,000	14,000

The company's policy is to hold closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month. Prepare Production Budget For The First Quarter In Month Wise

Shown Below Is An Extract From The Company's Working Papers For The Next Month's Budget:

	A	B
Budgeted sales (in units)	2,400	3,600
Budgeted material consumption per unit (in kg):		
Material-X	5	3
Material-Y	4	6

There Are Four 5-Days Weeks In The Budgeted Period And It Is Anticipated That Sales And Production Will Occur Evenly Throughout The Whole Period.

Opening Stock:

Product-A 400 units

Product-B 200 units

Material-X 1,000 kg.

Material-Y 500 kg.

Closing Stocks For Budget Period:

Product-A 4 days sales

Product-B 5 days sales

Material-X 10 days consumption

Material-Y 6 days consumption

Labour Budget

	A	B
Production	2,480	4,300
Standard labour hours allowed per unit of product	3	5

The Target Productivity Ratio (Or Efficiency Ratio) For the Productive Hours Worked By The Direct Workers In Actually Manufacturing the Products Is 80%. In addition The Non-Productive Down-Time Is Budgeted At 20% Of the Productive Hours Worked. Rate / hour = Rs 25 / hr

Illustration

You are required to prepare a selling overhead Budget from the estimates given below

Particulars	(`)
Advertisement	1,000
Salaries of the Sales dept.	1,000
Expenses of the Sales dept.(Fixed)	750
Salesmen's remuneration	3,000

Salesmen's and dearness Allowance - Commission @ 1% on sales affected excluding agents sale. Carriage outwards: estimated @ 5% on sales

Agents Commission: 7½ % on sales

The sales during the period were estimated as follows:

- (a) ` 80,000 including Agent's Sales ` 8,000
- (b) ` 90,000 including Agent's Sales ` 10,000
- (c) ` 1,00,000 including Agent's Sales ` 10,500

Illustration

From the following information relating to 2021 and conditions expected to prevail in 2022, prepare a budget for 2022.

2021 Actual:		Amount (₹)
Sales (40,000 units)		1,00,000
Raw materials		53,000
Wages		11,000
Variable Overhead		16,000
Fixed Overheads		10,000

2022 Prospects:		
Sales (60,000 units)		1,50,000
Raw Materials		5% increase in prices
Wages		10% increase in wage rate
		5% increase in productivity
Additional plant: One Lathe		₹ 25,000
One Drill		₹ 12,000

10% Depreciation to be considered.

Illustration

Production costs of a factory for a year are as follows:

	Amount (₹)
Direct Wages	80,000
Direct Materials	1,20,000
Production Overheads: Fixed	40,000
Variable	60,000

During the forthcoming year it is anticipated that:

- The average rate for direct labour remuneration will fall from ₹ 0.80 per hour to ₹ 0.75 per hour.
- Production efficiency will be reduced by 5%
- Price per unit of direct material and of other materials and services which comprise overheads will remain unchanged, and
- Production in the coming year will increase by 33.33%

Draw up a production cost budget.

Illustration

The following information at 50% capacity is given. Prepare a flexible budget and forecast the profit or loss at 60%, 70% and capacity.

Fixed Expenses	Amount (₹)
Salaries	50,000
Rent and taxes	40,000
Depreciation	60,000
Administrative expenses	70,000
Variable expenses	
Materials	2,00,000
Labour	2,50,000
Others	40,000
Semi – variable expenses	
Repairs	1,00,000
Indirect labour	1,50,000
Others	90,000
Sales	9,00,000

It is estimated that fixed expenses will remain constant at all capacities. semi –variable expenses will not change between 45% and 60% capacity, will rise by 10% between 60% and 75% capacity, a further increase of 5% when the capacity crosses by 75%.

Estimated sales:

Capacity	60%	70%	90%
	11,00,000	13,00,000	15,00,000

Illustration

AB Co., Ltd. manufactures two products A and B and sells them through two Divisions-North and South. For the purpose of submission of sales budget to the budget committee the following information is available:-

Budgeted sales for the current year were:

Product	North	South
A	4,000 at ` 9	6,000 at ` 9
B	3,000 at ` 21	5,000 at ` 21

Actual sales for the current year were: -

Product	North	South
A	5,000 at ` 9	7,000 at ` 9
B	2,000 at ` 21	4,000 at ` 21

Adequate market studies reveal that Product A is popular but under-priced. It is observed that if the price of A is increased by ` 1 it will still find a ready market. On the other hand, B is overpriced to customers and the market could absorb more if sales price of B be reduced by ` 1. The management has agreed to give effect to the above price changes.

From the information based on these price changes and reports from salesmen, the following estimates have been prepared by divisional managers: -

Percentage increase in sales over current budget is :-

Product	North	South
A	+ 10%	+5%
B	+20%	+10%

With the help of an intensive advertisement campaign the following additional sales over the estimated sales of divisional managers are possible:-

Additional sales above the estimated sales of divisional managers:

Product	North (units)	South (units)
A	600	700
B	400	500

You are required to prepare a budget for sales incorporating the above estimates and also show the budgeted and actual sales of current year.

Illustration

A company manufactures product - A and product - B during the year ending 31st December 2022, it is expected to sell 15,000 kg of product A and 75,000 kg of product B at ` 30 and ` 16 per kg respectively. The direct materials P, Q and R are mixed in the proportion of 3: 5: 2 in the manufacture of product A, Materials Q and R are mixed in the proportion of 1:2 in the manufacture of product B. The actual and budget inventories for the year are given below:

	Opening Stock	Closing Stock	Cost per Kg
Material – P	4,000	3,000	12
Material – Q	3,000	6,000	10
Material – R	30,000	9,000	8
Product – A	3,000	1,500	—
B	4,000	4,500	—

Prepare the Production Budget and Materials Budget showing the expenditure on purchase of materials for the year ending 31-12-2022.

Illustration

The following details apply to an annual budget for a manufacturing company.

QUARTER	1st	2nd	3rd	4th
Working Days	65	60	55	60
Raw material purchases (% by weight of annual total)	30%	50%	20%	—
Budgeted purchase price/Kg. (₹)	1	1.05	1.125	—

Quantity of raw material per unit of production 2 kgs. The budgeted closing stock of raw material 2,000 kg. Budgeted opening stock of raw material 4,000 kg. (Cost ₹ 4,000). Issues are priced on FIFO Basis. Calculate the following budgeted figures.

- Quarterly and annual purchase of raw material by weight and value.
- Closing quarterly stocks by weight and value.

The monthly budgets for manufacturing overhead of SHEBAN LTD., for two levels of activity were as follows:

Capacity	60%	80%
Budgeted Production (units)	600	1000
	Rs	Rs
Wages	1200	2000
Consumable stores	900	1500
Maintenance	1100	1500
Power and Fuel	1600	2000
Depreciation	4000	4000
Insurance	1000	1000

- (i) Prepare a Budget for 80% capacity; and
- (ii) Find the total cost, both fixed and variable per unit of output at 60%, 80% and 100% capacity.

A factory is currently running at 50% capacity and produces 5,000 units at a cost of ₹90 per unit as per details below

Material	₹50
Labour	15
Factory Overheads	15 (₹ 6/- fixed)
Administrative Overheads	10 (₹ 5/- fixed)

The current selling price is ₹100 per unit.

At 60% working, material cost per unit increase by 2% and selling price per unit falls by 2%.

At 80% working, material cost per unit increase by 5 % and selling price per unit falls by 5%.

Compute and estimate profits of the factory at 60% and 80% working and offer your

The following are the estimated sales of S Ltd. for eight months ending 30.11.2022:

Months	Estimated Sales (units)
April 2022	1,20,000
May 2022	1,30,000
June 2022	90,000
July 2022	80,000
August 2022	1,00,000
September 2022	1,20,000
October 2022	1,40,000
November 2022	1,20,000

As a matter of policy, the company maintains the closing balance of finished goods and raw materials as follows

Stock item	Closing balance of a month
Stock item	50% of the estimated sales for the next month
Raw Materials	Estimated consumption for the next month

Every unit of production requires 2 kg. of raw material costing ₹5 per kg.

Prepare Production Budget (in units) and Raw Material Purchase Budget (in units and cost) of the company for the half year ending 30 September, 2022

- (b) Following are the summarised revenue and expenditure figures of Sarathi Ltd. for the month of March to August, 2022:

Month	Sales (₹)	Purchases (₹)	Wages (₹)	Expenses (₹)
March	13,00,000	8,00,000	2,40,000	1,00,000
April	14,00,000	9,60,000	3,00,000	1,00,000
May	15,00,000	9,00,000	3,00,000	1,20,000
June	16,00,000	9,60,000	3,60,000	1,20,000
July	16,40,000	8,00,000	3,60,000	1,60,000
August	17,80,000	10,00,000	4,00,000	1,60,000

The following further information is available:

- (i) 10% Purchases and sales are on cash basis.
- (ii) Advance payment of income tax in August, 2022 is ₹ 2,20,000.
- (iii) Plant purchased and price to be paid in June, 2022 is ₹ 1,00,000.
- (iv) Time lag:

Credit sales	2 months
Credit purchases	1 month
Wages	½ month
Expenses	½ month

Required:

Prepare a Cash Budget for 3 months starting on 1st June, 2022 when cash balance is ₹ 2,50,000.

Zee Co. Ltd. wishes to arrange overdraft facilities with its bankers from the period August to October 2022. The following information is available for the period June to December 2022.

Month	Sales	Purchases	Wages	Manufacturing Exp.	Office Exp.	Selling Exp.
June	1,80,000	1,24,800	12,000	3,000	2,000	2,000
July	1,92,000	1,44,000	14,000	4,000	1,000	4,000
August	1,08,000	2,43,000	11,000	3,000	1,500	2,000
September	1,74,000	2,46,000	12,000	4,500	2,000	5,000
October	1,26,000	2,68,000	15,000	5,000	2,500	4,000
November	1,40,000	2,80,000	17,000	5,500	3,000	4,500
December	1,60,000	3,00,000	18,000	6,000	3,000	5,000

Additional Information:

1. Cash on hand 1-08-2022 ` 25,000.
2. 50% of credit sales are realized in the month following the sale and the remaining 50% in the second month following. Creditors are paid in the month following the month of purchase.
3. Lag in payment of manufacturing expenses half month.
4. Lag in payment of other expenses one month

When the financial controller of Better Company set the budget for the year ahead, it was expected that monthly output of cake packages would be 12,000 units. In March the output was increased to 14,000 per month following negotiation with a chain of corner shops. The following table contains the original budget and the actual outcome for the month of March.

Particulars	Original Budget	Actual for March
Cake packages output	12,000	14,000
Direct materials	48,000	53,000
Direct labour	24,000	29,000
Variable overhead	6,000	7,200
Fixed overhead	4,000	4,500
Total production costs	82,000	93,700

The Financial Controller wants you to analyse the variances in order to prepare a report

Prepare a Cash Budget for the three months ending 30th June, 2023 from the information given below

Month	Sales (₹)	Materials (₹)	Wages (₹)	Overhead (₹)
February	14,000	9,600	3,000	1,700
March	15,000	9,000	3,000	1,900
April	16,000	9,200	3,200	2,000
May	17,000	10,000	3,600	2,200
June	18,000	10,400	4,000	2,300

Credit terms are:

- ⇒ Sales / Debtors: 10% sales are on cash, 50% of the credit sales are collected next month and the balance in the following month.
- ⇒ Creditors: Materials 2 months Wages
 $\frac{1}{4}$ month
 Overheads $\frac{1}{2}$ month
- ⇒ Cash and bank balance on 1st April, 2023 is expected to be ₹ 6,000.

Other relevant information are:

- Plant and machinery will be installed in February 2017 at a cost of ₹ 96,000. The monthly instalment of ₹ 2,000 is payable from April onwards.
- Dividend @ 5% on preference share capital of ₹ 2, 00,000 will be paid on 1st June.
- Advance to be received for sale of vehicles ₹ 9,000 in June.

Dividends from investments amounting to ₹ 1,000 are expected to be received in June.

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	1,000	2,800
May	1,200	2,800
June	1,600	2,400
July	2,000	2,000
August	2,400	1,600

Other information is as follows:

Cost per unit (₹)	Product X	Product Y
Direct Materials	12.50	19.00
Direct Labour	4.50	7.00
Factory Overhead	3.00	4.00

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.

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
Diner wages	20 workers @ ` 1,500 per month
Factory overheads:	
Indirect labour-	
Works manager	` 5,000 per month
Foreman	` 4,000 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% on direct wages
Administration, selling and distribution expenses	` 3,60,000 per year

Required:

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

PCT LTD Provides you with the following information :-

(PP DEC 2022 ,2016 SYLL)

Particulars	Product A	Product B
1) Figures for the year 2021		
a) Sales	240000	200000
b) Selling price per unit	24	50
c) Closing finished stock (on FIFO)	`20,000at Rs 20	`46000 at Rs 20
Material and Labour requirements		
Direct material X at the rate Rs 3 per units	1.9 units	3.8 unit
Direct material Y at the rate Rs 1 per units	1.08 UNIT	1.62 Unit
Direct labour in P dept at the rate Rs 1 hour	2 hours	1 hour
Direct labour in Q dept at the rate Rs 3 hour	1 Hour	1 hour
Target for 2022		
Sales qty increase	(20%)	25%
Selling price increase	25%	(20%)
Closing finished stock units	2700	1100
Post production rejection rate	3%	5%
Direct material stock		
Closing stock on 31/12/2021	11280 units	1640 units
Estimated stock was 31.12.2022	16000 units	4000 units
Material wastage rate	5%	4%

1. Material Prices are expected to increase by 10%.
2. Wage Rates are expected to increase by 30% and a 25% increase in labour productivity is expected.
3. 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.



B Ltd is manufacturers of electronic switches .Each switch requires 3 minor circuit that cost RS 2 each .The company has prepared a production budget for the electronic switches by quarters for year 2 and the 1st quarter of the year 3 as follows :-

	Year 2				Year 3
Budgeted production	1 st	2	3	4	First
	60000	90000	150000	100000	80000

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

Required :-

Prepare direct material budget for the minor circuits for each quarter for year .

MARGINAL COSTING – BASIC CONCEPTS

INCOME STATEMENT

QUICK RECAP OF COSTS:

Nature	Description	Total	Per / unit	Change in cost
Fixed Cost	FC remains Constant irrespective of change in no of units	FC in TOTAL remains constant	FC / unit will DECREASE with INCREASE in no of units. FC / unit will INCREASE with DECREASE in no of units.	Any CHANGE to FC should be made in TOTAL .
Variable Cost	VC will change in same proportion with the change in no of units.	TOTAL VC will INCREASE with INCREASE in no of units. TOTAL VC will DECREASE with DECREASE in no of units.	VC / UNIT will remain CONSTANT .	Any CHANGE to VC should be made in VC / UNIT .

INCOME STATEMENT

Particulars	1 unit	2000 unit	5000 unit	7000 unit	10000 unit
Sales @ Rs 100 p.u.					
Less: Variable cost @ Rs 40 p.u.					
Contribution					
Less: Fixed cost (Rs 3 lakh)					
Profit					

CONTRIBUTION

1. **CONTRIBUTION = SALES – VARIABLE COST**
2. **CONTRIBUTION = FIXED COST + PROFIT**

PROFIT VOLUME RATIO / CONTRIBUTION TO SALES RATIO

1. **PV RATIO = $\frac{\text{CONTRIBUTION}}{\text{SALES}} \times 100$**
 2. **PV RATIO = $\frac{\text{CONTN} / \text{UNIT}}{\text{SP} / \text{UNIT}} \times 100$**
 3. **PV RATIO = $\frac{\Delta \text{CONTRIBUTION}}{\Delta \text{SALES}} \times 100$**
 4. **PV RATIO = $\frac{\Delta \text{PROFIT}}{\Delta \text{SALES}} \times 100$**
 5. **PV RATIO = $\frac{\text{FIXED COST} \times 100}{\text{BEP VALUE}}$**
 6. **PV RATIO = $\frac{\text{PROFIT} \times 100}{\text{MOS VALUE}}$**
- ✓ **PV RATIO WILL REMAIN IRRESPECTIVE OF CHANGE IN NO OF UNITS**
 - ✓ **.....THE PV RATIO, BETTER FOR THE COMPANY**
 - ✓ **PV RATIO WILL IMPROVE –**

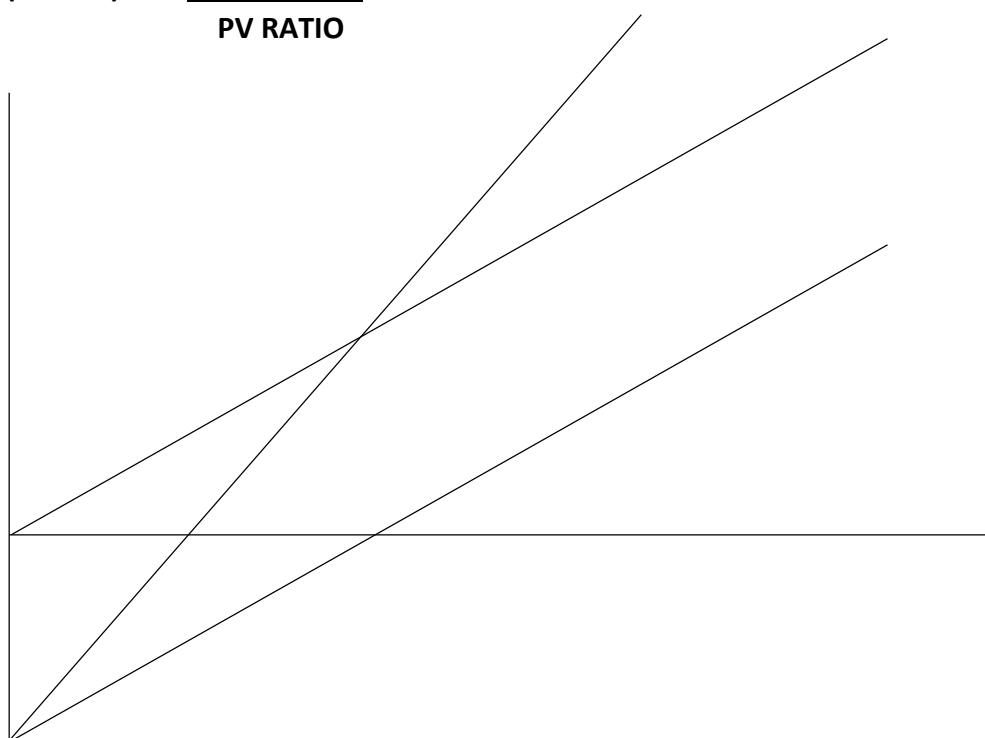
- A. IN SP / UNIT
- B. IN VC / UNIT
- C. IN SP / UNIT > IN VC / UNIT
- D. IN SP / UNIT < IN VC / UNIT

✓ PV RATIO + VARIABLE COST RATIO = 100%

BREAK EVEN POINT

$$1. \text{ BEP (QUANTITY) } = \frac{\text{FIXED COST}}{\text{CONTN / UNIT}}$$

$$2. \text{ BEP (VALUE) } = \frac{\text{FIXED COST}}{\text{PV RATIO}}$$



MARGIN OF SAFETY

$$1. \text{ MOS (QUANTITY) } = \frac{\text{PROFIT}}{\text{CONTN / UNIT}}$$

$$2. \text{ MOS (VALUE) } = \frac{\text{PROFIT}}{\text{PV RATIO}}$$

SALES TO EARN DESIRED LEVEL OF PROFIT

$$1. \text{ SALES (QUANTITY)} = \frac{\text{FC} + \text{PROFIT}}{\text{CONTN} / \text{UNIT}}$$

$$2. \text{ SALES (VALUE)} = \frac{\text{FC} + \text{PROFIT}}{\text{PV RATIO}}$$

IMPORTANT POINT

- ✓ PV RATIO + VC & ON SALES = 100%
- ✓ BEP % ON SALES + BEP % ON SALES = 100%
- ✓

SALES VALUE	= SALES QTY X SP / UNIT
BEP VALUE	= BEP QTY X SP / UNIT
MOS VALUE	= MOS QTY X SP / UNIT
- ✓ IN CASE OF MERGED PLANT – CONVERT SALES, VC INTO 100% OF VALUES OF PLANTS TO BE MEREGED, THEN CUMULATE VALUE FOR ALL THE PLANTS. FIXED COST, HOWEVER, WILL NOT CHANGE.

COMPOSITE BEP

TOTAL CONTRIBUTION = FIXED COST

<u>ILLUSTRATION -</u>	<u>SHIRT</u>	<u>T-SHIRT</u>
SP / UNIT	1000	500
VC / UNIT	400	300
CONTN / UNIT	600	200

RATIO 5 :

FIXED COST = RS 680,000

1. A company sells its product at ₹ 15 per unit. In a period, if it produces and sells 8,000 units, it incurs a loss of ₹ 5 per unit. If the volume is raised to 20,000 units, it earns a profit of ₹ 4 per unit. Calculate break-even point both in terms of rupees as well as in units.

2. A single product company sells its products at ₹ 60 per unit. In 2010, the company operated at a margin of safety of 40%. The fixed costs amounted to ₹ 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 costs 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 ₹ 60 per unit in 2011, find the number of units required to be produced and sold to earn the same profit as in 2010.

3. 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 period :

	Sales		Profit	
	Actual	Over/(Under) Budget	Actual	Over/(Under) Budget
(₹ in '000)				
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.

4. PQR Ltd. has furnished the following data for the two years :

	2010-11	2011-12
Sales	₹ 8,00,000	?
Profit/Volume Ratio (P/V ratio)	50%	37.5%
Margin of Safety Sales as a % of Total Sales	40%	21.875%

You are required to calculate the following :

(i) Sales for 2011-12 in ₹ (ii) Fixed cost for 2011-12

(iii) Break-even sales for 2011-12 in ₹

5. You are given the following data :

	Sales	Profit
Year 2010	` 1,20,000	8,000
Year 2011	` 1,40,000	13,000

- (i) P/V ratio,
- (ii) B.E. Point,
- (iii) Profit when sales are ` 1,80,000,
- (iv) Sales required earn a profit of ` 12,000,
- (v) Margin of safety in year 2011.

6. A, B and C are three similar plans under the same Management who wants them to be merged for better operation. The details are as under:

Plant	A	B	C
Capacity operated	100 % (in lacs)	70 % (in lacs)	50 % (in lacs)
Turnover	300	280	150
Variable cost	200	210	75
Fixed cost	70	50	62

Find out :

- (i) The capacity of the Merged Plant for - Break Even
- (ii) The profit at 75 % capacity of the Merged Plant.
- (iii) The turnover from the merged plant to give a profit of ` 28 lacs.

7. A company gives the following information:

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

- (i) Selling price per unit (ii) Profit (iii) Profit/ Volume Ratio (iv) Break Even Sales (in Rupees) (v) Fixed Cost



8. 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 COGS	--
Direct Labour	15% of COGS	--
Factory Overhead	10% of COGS	` 2,30,000
General & Administration Overhead	2% of COGS	` 71,000
Selling & Distribution Overhead	4% of Cost of Sales	` 68,000

Last Year 5,000 units were sold at ` 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.

9. M.K. Ltd. manufactures and sells a single product X whose selling price is ` 40 per unit and the variable cost is ` 16 per unit.

(i) If the Fixed Costs for this year are ` 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 ` 50 per unit and the variable cost ` 10 per unit. The total fixed costs are estimated at ` 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 breakeven sales in rupee and quantities.

Illustration

The following is the statement of a Radical Co. for the month of June

Particulars	Products		Total (₹)
	L ₹	M ₹	
Sales	60,000	60,000	1,20,000
Less: Variable Costs	42,000	30,000	72,000
Contribution	18,000	30,000	48,000
Less: Fixed Cost			36,000
Net Income			12,000

You are required to compute the P/V Ratio for each product and then compute the P/V Ratio, Break Even Point and Net Income for the following assumption:

Sales revenue divided 60% to Product L & 40% to Product M

Sales revenue divided 40% to Product L & 60% to Product M

The following data has been extracted from the cost records of CYTOGEN Inc. For a particular period, the Sales revenue is ` 2,00,000 and the profit is ` 20,000. If it is known that the variable Cost ratio is 60% you are required to calculate:

- (i) the Contribution to Sales Ratio
- (ii) the Fixed Cost and
- (iii) the Sales volume to earn a profit of ` 50,000

An exporter of auto machine parts is earning a profit of ` 1,00,000 on a sale of ` 12,00,000. Selling price is ` 40 per part and variable cost is ` 30 per part. The exporter incurs an additional fixed cost of ` 3,00,000 on product improvement which also enables him to economise ` 5 in per part variable cost. As per trade agreements, the sale of his parts is restricted to the old value of ` 12,00,000

Determine the selling price per part so that the exporter earns the same profit at the same sales value?

A) Z plc currently sells products Aye, Bee and Cee in equal quantities and at the same selling price per unit. The contribution to sales ratio for product Aye is 40 per cent; for product Bee it is 50 per cent and the total is 48 per cent. If fixed costs are unaffected by mix and are currently 20 per cent of sales. If the product mix is changed to: Aye 40% Bee 25% Cee 35%

Calculate the new total contribution/total sales ratio.

B) RT plc sells three products.

Product R has a contribution to sales ratio of 30%.

Product S has a contribution to sales ratio of 20%.

Product T has a contribution to sales ratio of 25%.

Monthly fixed costs are `100 000.

If the products are sold in the ratio: R: 2 S: 5 T: 3

Calculate the monthly breakeven point (to nearest

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:

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

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

Particulars	1" PVC Pipe	1/2" PVC 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:

- Number of units of product 1" PVC Pipe and 1/2" PVC Pipe sold in 2022-23.
- Total expected profit of the company from the two products in 2023-24.



From the cost records of a company for a specific period, for product X, the information given in the first column can be ignored since it is only one of the several projections of an assistant accountant, but it may be useful to you

Particular	This Period Actual (₹)	One of The Future Projections (₹)
Sales (Units)	10,000	20,000
Profit (Loss)	(10,000)	10,000
Fixed Costs	30,000	30,000
Variable Cost Per Unit	8	8

On the basis of the first column, **determine**

1. **What** increased sales volume is required to cover an additional attractive packaging cost of ` 0.50 per unit, to increase the sales, at the existing sales price, to yield zero profit?
2. **What** increased sales volume is in required at the present sale price, to cover an additional publicity expense of ` 5,000 for that period, while yielding a profit of ` 5,000.
3. What increased sales volume is required to reach a profit of ` 4,000 while reducing the selling price by 3 per cent per unit

S Ltd. furnishes you the following information relating to the half year ended 30th June, 2022

Fixed expenses	` 45,000
Sales value	` 1,50,000
Profit	` 30,000

During the second half the year the company has projected a loss of 710,000.

Calculate:

1. The B.E.P and M/S for six months ending 30th June, 2022.
2. Expected sales volume for the second half of the year assuming that the P/V Ratio and Fixed expenses remain constant in the second half year also.

The B.E.P and M/S for the whole year for 2022

Reaxon Ltd. a manufacturing company provides you the following details for the year 2023:

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) Calculate what additional sales will be required to offset that increase in advertisement outlays.
- (iii) Determine what should be selling price per unit if the breakeven point is brought down to 20,000 units?

The cost volume -profit relationship of A ltd is described by the equation $Y = \text{Rs } 240000 + 0.6x$, 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 this P/V ratio
- ii. What sales volume must be obtained to break even for the company?
- iii. Analyse sales volume to be required to produce an income of Rs 100000

FOVA LTD a manufacturing company sells 24000 flower vases every year .The details of cost for the year ended 31st march 2022 is given below :-

Selling price per flower vase	Rs 800
Variable cost per flower vase	Rs 600
Fixed cost :- staff salaries	Rs 2400000
General office cost	Rs 800000
Advertising cost	Rs 800000

Required :-

- Assess the break even point and margin of safety in no.of units of sales

The company has gained reputation and in the year 2023 no advertising cost will have to be incurred if the company so decides .The selling price will remain unaltered.The variable cost will have to increase by 10% to make the flower vases more attractive.Consider the new BEP AND MARGIN OF SAFETY

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:

Particulars	RS
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)	96000
Fixed Overheads	240000

Required :-

- Calculate the Total Fixed Cost at 50% capacity level
- Calculate the Number of units to be sold to earn a profit of 28 per unit
- 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

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

GYC LTD provides you with the following information :-

Year 1		Year 2	
Loss	Rs 40000	Cost	1140000
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

The following data relates to a manufacturing company:

Plant Capacity = 4,00,000 units per annum. Present Utilization = 40% Actual for the year 2014 were:

Selling price = 50 per unit, Material cost = 20 per unit,

Variable Manufacturing costs = 15 per unit and Fixed cost = 27,00,000.

\ In order to improve capacity utilization, the following proposal is considered: Reduce Selling price by 10% and spend additionally 3,00,000 in Sales Promotion. How many units should be produced and sold in order to increase profit by 8,00,000 per year?

M/s BL13 Industries provided you the following 31-03-2023; information for the year ended

Particulars	Amount (In `)
Sales	40,000
Raw Material Cot	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:

- (1) 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?

MARGINAL COSTING – DECISION MAKING

ABC Limited produces and sells two product- X and Y. The product is highly demanded in the market. Following information relating to both the products are given as under :

	Per Unit (₹)	
	X	Y
Direct Materials	140	180
Direct Wages	60	100
Variable Overheads (₹ 5 per machine hour)	20	40
Selling price	300	450

The company is facing scarcity of machine hours for working. The availability of machine hours are limited to 60,000 hrs in a month. At present, the monthly demand of product X and product Y is 8,000 units and 6,000 units respectively. The fixed expenses of the company are ₹ 2,25,000 per month.

DETERMINE the product mix that generates maximum profit to the company in the given situation and also CALCULATE the profit of the company.

Moon Ltd. produces products 'X', 'Y' and 'Z' and has decided to analyse its production mix in respect of these three products - 'X', 'Y' and 'Z'.

You have the following information:

Department	X	Y	Z
Direct Materials ` (per unit)	160	120	80
Variable Overheads ` (per unit)	8	20	12

Direct labour:

Department	Rate per Hour (`)	Hours per unit X	Hours per unit Y	Hours per unit Z
Department-A	4	6	10	5
Department-B	8	6	15	11

From the current budget, further details are as below :

	X	Y	Z
Annual Production at present (in units)	10,000	12,000	20,000
Estimated Selling Price per unit (`)	312	400	240
Sales departments estimate of possible sales in the coming year (in units)	12,000	16,000	24,000

There is a constraint on supply of labour in Department-A and its manpower cannot be increased beyond its present level.

Required:

- IDENTIFY the best possible product mix of Moon Ltd.
- CALCULATE the total contribution from the best possible product mix.

Illustration

A company has a capacity of producing 1 lakh units of a certain product in a month. The sales department reports that the following schedule of sales price is possible:

Volume of Production	Selling Price per unit
%	(₹)
60	0.90
70	0.80
80	0.75
90	0.67
100	0.61

The variable cost of manufacture between these levels is 15 paise per unit and fixed cost ₹ 40,000. Prepare a statement showing incremental revenue and differential cost at each stage. At which volume of production will the profit be maximum?

Illustration

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% Amount (₹)	100% Amount (₹)
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%.

- You are required to determine the differential cost of producing 1,500 units by increasing capacity to 100%.
- What would you recommend for an export price for these 1,500 units taking into account that overseas prices are much lower than indigenous prices?

Illustration

A Company is manufacturing a product marks an average net profit of ₹ 2.50 per piece on a selling price of ₹ 14.30 by producing and selling 6,000 pieces or 60% of the capacity. His cost of sales is as under:

Particulars	
Direct material	3.50
Direct wages	1.25
Works overheads (50% fixed)	6.25
Sales overheads (25% variable)	0.80

During the current year, he intends to produce the same number but anticipates that fixed charges will go up by 10%, with direct labour rate and material will increase by 8% and 6% respectively but he has no option of increasing the selling price. Under this situation, he obtains an offer for further 20% of the capacity. What minimum price you will recommend for acceptance to ensure the manufacturer an overall profit of ₹ 16,730.

Illustration

A Co. currently operating at 80% capacity has the following; profitability particulars:

	Amount (₹)	Amount (₹)
Sales		12,80,000
Costs:		
Direct Materials	4,00,000	
Direct labour	1,60,000	
Variable Overheads	80,000	
Fixed Overheads	5,20,000	11,60,000
Profit		1,20,000

An export order has been received that would utilise half the capacity of the factory. The order has either to be taken in full and executed at 10% below the normal domestic prices, or rejected totally. The alternatives available to the management are given below:

- Reject order and Continue with the domestic sales only, as at present;
- Accept; order, split capacity equally between overseas and domestic sales and turn away excess domestic demand;
- Increase capacity so as to accept the export order and maintain the present domestic sales by:
 - buying an equipment that will increase capacity by 10% and fixed cost by ₹ 40,000 and
 - Work overtime at one and a half the normal rate to meet balance of required capacity.

Prepare comparative statements of profitability and suggest the best.

Illustration

A company is producing two products A and B. The particulars of the company are as follows:

	Product A (₹ per unit)	Product B (₹ per unit)
Sales	75	80
Material Cost	15	20
Labour Cost	20	15
Direct Expense	10	12
Variable overheads	10	15
Machine Hours used	3 hours	2 hours
Consumption of material	2 kgs	2 kgs

Comment on profitability of each product, if both use the same raw material, when:

- (i) Total sales potential in units is key factor.
- (ii) Total sales potential in values is key factor.
- (iii) Raw material is in short supply.
- (iv) Production Capacity (in terms of machine hr.) is the key factor.

Illustration

X Ltd. wants to replace one of its old machines. Three alternative machines namely X1, X2 and X3 are under its consideration. The costs associated with these machines are as under:

	Amount (₹)		
	X1	X2	X3
Direct material cost p.a.....	50	100	150
Direct labour cost p.a.....	40	70	200
Variable overhead p.a.....	10	30	50
Fixed cost p.a.....	2,50,000	1,50,000	70,000

- Compute the cost indifference points for these alternatives.
- Based on these points suggest a most economical alternative machine to replace the old one when the expected level of annual production is 1,200 units.

Illustration 9

The Hope Company has three divisions. Each of which makes a different product. The budgeted data for the coming year are as follows:

	A (₹)	B (₹)	C (₹)
Sales	1,12,000	56,000	84,000
Direct Material	14,000	7,000	14,000
Direct Labour	5,600	7,000	22,400
Direct Expenses	14,000	7,000	28,000
Fixed Cost	28,000	14,000	28,000

The Management is considering closing down the division C. There is no possibility of reducing fixed cost. Advise whether or not division C should be closed down.

Illustration

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 (₹/ unit)	10	12	12
Variable Costs (₹/ unit)	6	9	7
Market Demand (units)	3,000	2,000	1,000
Production Capacity (units)	2,000	3,000	900
Fixed Costs (₹)		30,000	

Required:

Compute the opportunity costs for each of the products.

Illustration

As a Management Accountant of Bush Radio Company you find that while it costs ₹12.50 to make a component X, the same is available in the market at ₹11.50 with an assurance of continued supply. The break-down of the cost is:

	(₹)
Materials --	₹5.50
Labour --	₹3.50
Other variable overheads --	₹1.00
Depreciation & other fixed cost --	₹2.50
Total Cost --	₹12.50

- Should you make or buy?
- What would be your decision, if the supplier offered the component at ₹. 9.70 each?

Illustration

A factory produces 24000 units. The cost sheet gives the following information:

Direct material	₹ 1,20,000
Direct wages	84,000
Variable overheads	48,000
Semi-variable overheads	28,000
Fixed overheads	80,000
Total Cost	3,60,000

The product is sold at ₹20 per unit. The management proposed to increase the production by 3000 units for sales in the foreign market. It is estimated that semi-variable overheads will increase by ₹1,000. But the product will be sold at ₹14 per unit in the foreign market. However, no additional capital expenditure will be incurred. The management seeks your advice as cost accountant.

What will you advise them?

Illustration

XYZ Company is considering hiring a machine at an annual charge of ₹12,000 to increase the output of a product from its present level of 6,000 units. It is anticipated that with the introduction of the machine the variable cost per unit will be reduced by ₹1.00 due to savings in labour cost. The new machine will not affect fixed cost in total, except for the hiring charges. The selling price of the product is ₹12 per unit. The present cost structure of the product is Variable cost ₹9 per unit and fixed cost ₹1.00 unit.

You are required to calculate the number of extra units, which must be produced and sold to justify hiring the machine, (that is the cost indifference point for the new machine).

Illustration

A plant is running at present at 50% of its capacity. The following details are available:

	Cost of production per unit (₹)
Direct materials	2
Direct Labour	1
Variable overhead	3
Fixed Overhead	2
Total Cost per unit	8
Production per month	20,000 units
Total cost of production	₹1,60,000
Sales Price	₹1,40,000
Loss	₹20,000

An exporter offers to buy 5,000 units per month at the rate of ₹. 6.50 per unit and the company hesitates to accept the offer for fear of increasing its operating losses. Advise whether the company should accept or decline this offer.

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?

A company is engaged in three distinct lines of production. Their production cost per unit and selling prices are as under

	X	Y	Z
Production (Units)	3,000	2,000	5,000
	,	,	,
Material Cost	18	26	30
Wages	7	9	10
Variable overheads	2	3	3
Fixed Overheads	5	8	9
	32	46	52
Selling price	40	60	61
Profit	8	14	9

The management wants to discontinue one line and gives you the assurance that production in two other lines shall be raised by 50%.

They intend to discontinue the line which produces Article X as it is less profitable

- Do** you agree to the scheme in principle?
- Offer** your comments and **show** the necessary statements to support your decision

Susma Products Co. Ltd. manufactured and sold in a year 15,000 units of a particular product fetching a sales value of ₹15 lakhs. After charging direct material @ 30% on sales value, direct labour 20% on sales value, variable overheads ₹10 per unit, the company earned profit of ₹ $16\frac{2}{3}$ per unit during the year. The existing equipment can produce a maximum of 20,000 units per annum. In case, the demand exceeds the maximum output, new equipment will be required which will cost ₹10 lakhs and it will have a life span of 10 years, with no residual value.

A prospective customer is willing to place an order on the company for 10,000 units per year regularly at 90% of the present selling price, which will be, if accepted, over and above the existing market for 15,000 units.

Irrespective of the fact whether or not the new order materializes, the cost increases with immediate effect are:

1. 10% in the Direct Materials.
2. 25% in the Direct Labour.
3. ₹50,000 in Fixed Overheads per year.

If the order of additional 10,000 units is accepted, the fixed overhead will increase by another ₹50,000 by way of increased administration expenses.

You are required to determine whether the company should accept the new business at the stipulated price or decline the new offer and make a concerted sales drive to sell the present unused capacity at the present selling price. The sales drive will cost ₹ 60,000 per year.

Ignore the financial charges on the cost of the equipment and assume there is no opening and closing inventories. Variable costs will increase in direct proportion to the output.

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..The information is for cost per

PARTICULARS	M	N
Direct material	62	87
Direct labour	51	75
Variable production overhead	12	13
Fixed production overhead	48	64
Total	173	239
Machine hours	2	3
Price from outside supplier	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.

PROCESS COSTING

PROCESS ACCOUNT (NO OPENING & CLOSING WIP)

PROCESS I ACCOUNT

Particulars	Qty	Rate	Value	Particulars	Qty	Rate	Value
To Raw Material	1000	50	50,000	By Normal Loss	100	10	1000
To Direct Wages			15,000	By Process II A/C	850		
To Direct Expenses			25,000	By Abnormal Loss			
To Factory O/H			10,000				
	1000				1000		

PROCESS I ACCOUNT

Particulars	Qty	Rate	Value	Particulars	Qty	Rate	Value
To Raw Material	1000	50	50,000	By Normal Loss	100	10	1000
To Direct Wages			15,000	By Process II A/C	930		
To Direct Expenses			25,000				
To Factory O/H			10,000				
To Abnormal Gain							

NORMAL LOSS / ABNORMAL LOSS / ABNORMAL GAIN

NORMAL LOSS ACCOUNT

Particulars	Qty	Rate	Value	Particulars	Qty	Rate	Value

ABNORMAL LOSS ACCOUNT

Particulars	Qty	Rate	Value	Particulars	Qty	Rate	Value

ABNORMAL GAIN ACCOUNT

Particulars	Qty	Rate	Value	Particulars	Qty	Rate	Value

A product passes through three processes A, B and C. The details of expenses incurred on the three processes during the year were as under:

	Process A	Process B	Process C
Units introduced @ `100 per unit	10,000		
Sundry materials (`)	10,000	15,000	5,000
Labour	30,000	80,000	65,000
Direct expenses	6,000	18,150	27,200
Selling price per unit	120	165	250

Management expenses during the year were ` 80,000 and selling expenses were ` 50,000. These are not allocated to the processes. Actual output of three processes was: A: 9,300 units; B: 5,400 units; C: 2,100 units.

Two-thirds of the output of Process A and one-half of the output of Process B was passed on the next process and the balance was sold. The entire output of Process C was sold.

The normal loss of the three processes, calculated on the input of every process, was:

Process A 5%, B 15% and C 20%. The loss of Process A was sold at ` 2 per unit and that of B at ` 5 per unit and of Process C at ` 10 per unit. Prepare the three Process Accounts.



PROCESS ACCOUNT (CLOSING WIP)

PROCESS I ACCOUNT

Particulars	Qty	Rate	Value	Particulars	Qty	Rate	Value
To Raw Material	1000	50	50,000	By Normal Loss	100	10	1000
To Direct Wages			35,000	By Process II A/C	700		
To Factory O/H			15,000	By Abnormal Loss	50		
				By Closing WIP (Mat 100%, CC 40%)	150		
	1000				1000		

STATEMENT OF EQUIVALENT NO OF UNITS

INPUT	PARTICULARS	OUTPUT	%	MAT	%	LABOUR	%	O/H
	COMPLETED							
	CLOSING WIP							
	NORMAL LOSS							
	ABNORMAL LOSS							
	ABNORMAL GAIN							

STATEMENT OF COST / EQUIVALENT UNIT

PARTICULARS	COST	EQUIVALENT UNIT	RATE / EQUIVALENT UNIT

STATEMENT OF VALUE OF COMPLETED UNITS, CLOSING WIP, ABNORMAL LOSS / GAIN

PARTICULARS	DETAILS	AMOUNT
COMPLETED		
CLOSING WIP		
NORMAL LOSS		
ABNORMAL LOSS		
ABNORMAL GAIN		

XP Ltd. furnishes you the following information relating to process II.

(i) Opening work-in-progress	NIL
(ii) Units introduced	42,000 units @ ` 8
(iii) Expenses debited to the process:	
Direct material	79,380
Labour	1,01,170
Overhead	1,61,024
(iv) Normal loss in the process	2 % of input.
(v) Closing work-in-progress	1200 units
Degree of completion-	100%
Materials	
Labour	50%
Overhead	40%
(vi) Finished output -	39,500 units
(vii) Degree of completion of abnormal loss:	
Material	100%
Labour	80%
Overhead	60%
(viii) Units scrapped were sold at	` 4.50 per unit.

PROCESS ACCOUNT (OPENING & CLOSING WIP) – FIFO

PROCESS I ACCOUNT

Particulars	Qty	Rate	Value	Particulars	Qty	Rate	Value
To Opening WIP (Mat 100%, CC 80%)	200	70	14,000	By Normal Loss (10%)	120	10	1200
To Raw Material	1000	50	50,000	By Process II A/C	900		
To Direct Wages			35,000	By Abnormal Loss	30		
To Factory O/H			15,000	By Closing WIP (Mat 100%, CC 70%)	150		
	1200				1200		

STATEMENT OF EQUIVALENT NO OF UNITS

INPUT	PARTICULARS	OUTPUT	%	MAT	%	LABOUR	%	O/H
	COMPLETED							
	- Out of opening							
	- Introduced & completed							
	CLOSING WIP							
	NORMAL LOSS							
	ABNORMAL LOSS							
	ABNORMAL GAIN							

STATEMENT OF COST / EQUIVALENT UNIT

PARTICULARS	COST	EQUIVALENT UNIT	RATE / EQUIVALENT UNIT

STATEMENT OF VALUE OF COMPLETED UNITS, CLOSING WIP, ABNORMAL LOSS / GAIN

PARTICULARS	DETAILS	AMOUNT
COMPLETED		
CLOSING WIP		
NORMAL LOSS		
ABNORMAL LOSS		
ABNORMAL GAIN		

The following data are available in respect of Process I for February 2012 :

(1) Opening stock of work in process : 800 units at a total cost of ` 4,000.

(2) Degree of completion of

	Opening WIP	Scrapped	Closing WIP
Materials	100%	100%	100%
Labour	60%	80%	70%
Overheads	60%	80%	70%
Units	800	1,200	900

(3) Input of materials at a total cost of ` 36,800 for 9,200 units.

(4) Direct wages incurred ` 16,740.

(5) Production overhead ` 8,370.

(6) 7,900 units were completed and transferred to the next process.

(7) Normal loss is 8% of the total input (opening stock plus units put in).

(8) Scrap value is ` 4 per unit.

You are required to show the Process Account for February, 2012 on FIFO basis.



PROCESS ACCOUNT (OPENING & CLOSING WIP) – WEIGHTED AVERAGE

PROCESS I ACCOUNT

Particulars	Qty	Rate	Value	Particulars	Qty	Rate	Value
To Opening WIP (10000+1500+2500)	200	70	14,000	By Normal Loss (10%)	120	10	1200
To Raw Material	1000	50	50,000	By Process II A/C	900		
To Direct Wages			35,000	By Abnormal Loss	30		
To Factory O/H			15,000	By Closing WIP (Mat 100%, CC 70%)	150		
	1200				1200		

STATEMENT OF EQUIVALENT NO OF UNITS

INPUT	PARTICULARS	OUTPUT	%	MAT	%	LABOUR	%	O/H
	COMPLETED							
	CLOSING WIP							
	NORMAL LOSS							
	ABNORMAL LOSS							
	ABNORMAL GAIN							

STATEMENT OF COST / EQUIVALENT UNIT

PARTICULARS	COST	EQUIVALENT UNIT	RATE / EQUIVALENT UNIT

STATEMENT OF VALUE OF COMPLETED UNITS, CLOSING WIP, ABNORMAL LOSS / GAIN

PARTICULARS	DETAILS	AMOUNT
COMPLETED		
CLOSING WIP		
NORMAL LOSS		
ABNORMAL LOSS		
ABNORMAL GAIN		

The following details are available of Process X for August 2011:

(1) Opening work-in-progress	8,000 units
Degree of completion and cost:	
Material (100%)	₹ 63,900
Labour (60%)	₹ 10,800
Overheads (60%)	₹ 5,400
(2) Input 1,82,000 units at	₹ 7,56,900
(3) Labour paid	₹ 3,28,000
(4) Over heads incurred	₹ 1,64,000
(5) Units scrapped	14,000
Degree of completion:	
Material	100%
Labour and overhead	80%
(6) Closing work-in-process	18000 units
Degree of completion:	
Material	100%
Labour and overhead	70%

(7) 1,58,000 units were completed and transferred to next process.

(8) Normal loss is 8% of total input including opening work-in-process

(9) Scrap value is ₹ 8 per unit to be adjusted in direct material cost

You are required to compute, assuming that average method of inventory is used:

."Super Bite" is a leading product in the confectionery market which is obtained after it has gone through three distinct processes - X, Y and Z. The following information is obtained from cost records of Super (India) Ltd. for the month of July, 2023:

PARTICULARS	PROCESS X	PROCESS Y	PROCESS Z
Input of raw materials @30 per unit (units)	1000		
Other material (₹)	26000	19800	29620
Direct wages	20000	30000	40000
Normal loss of input	5%	10%	15%
Output (units)	950	840	750
Sale of scrap/unit	20	40	50

Total overheads Rs 90000 which are recovered at 100% of wages

Prepare Process Account

A product passes through two processes. The output of Process I becomes the input of Process II and the output of Process II is transferred to warehouse. The quantity of raw materials introduced into process I is 20,000 kgs. at ₹ 10 per kg. The cost and output data for the month under review are as under

Particulars	Process I	Process II
Direct materials	₹60,000	₹ 40,000
Direct labour	₹40,000	₹ 30,000
Production	₹39,000	₹40,250
overheadsNormal	8 %	5%
loss	18,000	17,400
Output	2.00	3.00
Loss realization of ₹/Unit		

The company's policy is to fix the selling price of the end product in such a way as to yield a profit of 20% on selling price.

Required: (i) Prepare the Process Accounts, (ii) Determine the selling price per unit to the end product

A company produces a product 'M' by three distinct processes before it is ready for sale. From the information given below, work out the selling price of the product if the Management decides to earn a profit of 20% over its works cost. Prepare the Process A/c for each process

Particulars		Process		
		A	B	C
1	Input of raw materials @ ₹40 per kg. (kg)	10,000	-	-
2	Normal loss of input	5%	5%	5%
3	Delivered to next process (kg)	9,000	8,000	-
4	Total direct labour cost (₹)	15,000	15,750	13,000
5	Variable overhead (%of direct labour)	150%	120%	100%
6	Fixed overhead (% of direct labour)	250%	180%	200%
7	Finished stock held back (kg)	400	400	-

A product passes through three processes: A, B and C 10,000 units at a cost of ₹1.10 were issued to process L. The other direct Expenses were as follows:

	Process A (₹)	Process B (₹)	Process C (₹)
Sundry materials	1,500	1,500	1,500
Direct Labour	4,500	8,000	6,500
Direct Expenses	1,000	1,000	1,503

The wastage of process A was 5% and in process B 4%. The wastage of process A was sold at ₹0.25 per unit and that of B at ₹ 0.50 per unit and that C at ₹ 1.00 per unit. The overhead charges were 160% of direct labour. The final product was sold at ₹10 per unit fetching a profit of 25% on cost. Prepare process A/ c and also find out percentage of wastage in Process C

- (a) M/s Golden Oil Refinery Ltd. (GORL) produces “Golden” brand oil which passes through three different processes before getting finished oil. The following details are extracted from the costing records of the company for the month of March, 2023:

	Crushing (₹)	Refining (₹)	Finishing (₹)
Cost of Labour	5,000	3,000	2,000
Sundry Material	2,000	1,500	1,000
Electric Power	1,500	1,000	800
Steam	1,000	1,000	750
Repair of Machine	1,000	500	250
Cost of Casks and Drums	-	-	3,750

M/s GORL purchased 1,000 tons of copra for ₹ 50,000. Factory overheads for the period were ₹ 5,000 to be apportioned on the basis of wages. 850 tons of crude oil was produced; 770 tons of oil was refined and finally 750 tons of oil was finished for delivery. Realised ₹ 1,000 from sale of sacks; ₹ 2,500 by sale of 125 tons of copra residue and ₹ 2,550 by sale of 60 tons of by-products in refining process.

Required:

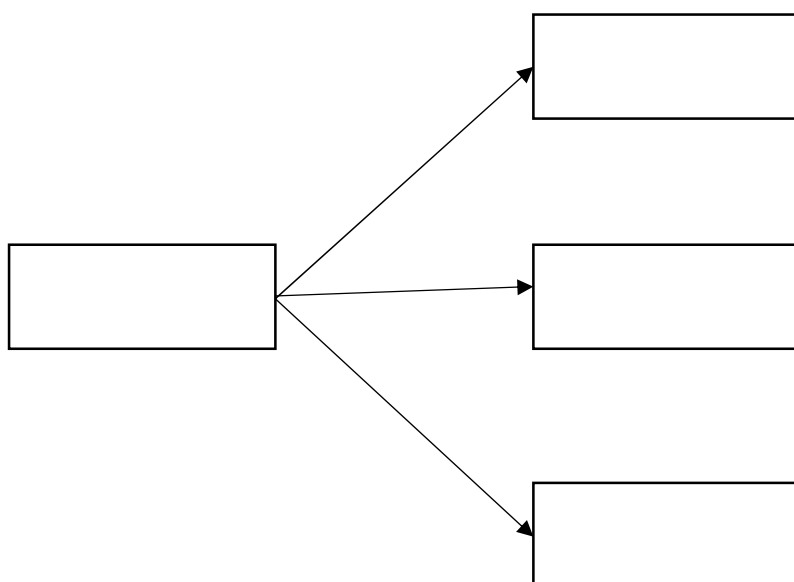
Prepare Process Accounts for the month of March, 2023.



JOINT & BY PRODUCT

JOINT PRODUCT VS BY PRODUCT

JOINT COST AND SUBSEQUENT COST



METHODS OF APPORTIONMENT OF JOINT COST

A. PHYSICAL UNIT METHOD

	UNITS	AMOUNT
A	500	
B	300	
C	200	
		60,000

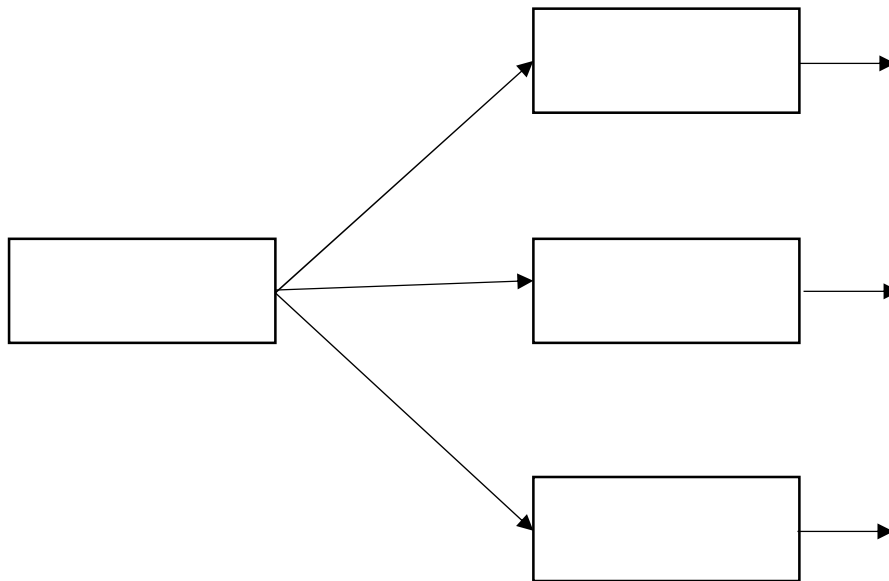
B. AVERAGE COST METHOD

	UNITS	AMOUNT
A	500	
B	300	
C	200	
		60,000

C. CONTRIBUTION MARGIN METHOD

	UNITS	SP / UNIT	SALES VALUE	VARIABLE COST	CONTN	FC
A	500	10				
B	300	8				
				60,000		40,000

D. REVERSE COST METHOD



XY Ltd manufactures three joint products – A, B and C. The actual joint expenses of manufacture for a period were ₹ 8,000. It was estimated that the profit on each product as a percentage of sales would be 30%, 25% and 15% respectively. Subsequent expenses were as follows:

	A	B	C
Materials	100	75	25
Labour	200	125	50
Overheads	150	125	75
	450	325	150
Sales	6,000	4,000	2,500

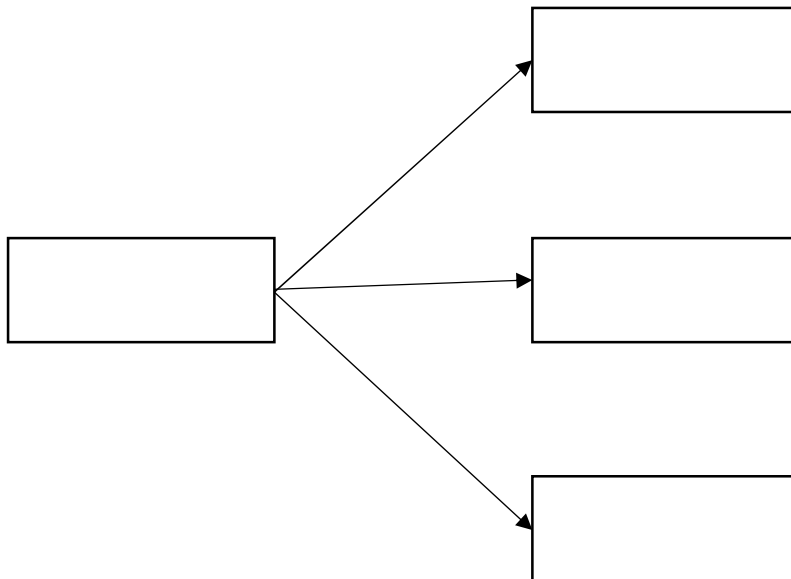
Prepare a statement showing apportionment of the joint expenses of manufacture over different products based on Reverse Cost method.

E. SALES VALUE AT SPLIT OFF POINT METHOD

F. NET REALISABLE VALUE (NRV) METHOD

$$\text{NRV} = \text{SALES VALUE OF FINAL OUTPUT} - \text{S \& D OVERHEAD} - \text{FURTHER PROCESSING COST}$$

BY PRODUCT



METHOD OF CALCULATION OF VALUE OF BY -PRODUCT

SCRAP REALISABLE VALUE

REVERSE COST METHOD



A company manufactures one main product (M1) and two by-products B1 and B2. For the month of January 2013, following details are available:

Total Cost upto separation Point ₹ 2,12,400

	M1	B1	B2
Cost after separation		₹ 35,000	₹ 24,000
No. of units produced	4,000	1,800	3,000
Selling price per unit	₹ 100	₹ 40	₹ 30
Estimated profit as % to sales		20%	30%
Estd selling exp as % to sales value	20%	15%	15%

Prepare statement showing: (i) Allocation of joint cost; and (ii) Product-wise and overall profitability of the company for January 2013.



A factory is engaged in the production of chemical BOMEX and in the course of its manufacture, a by-product. Berucil is produced, which after further processing has a commercial value. For the month of April 2011, the following are the summarised cost data :-

	Joint Expenses	Separate Expenses of	
		Bomex	Berucil
Materials	1,00,000	6,000	4,000
Labour	50,000	20,000	18,000
Overheads	30,000	10,000	6,000
Selling price per unit		98	34
Estimated profit p.u.			4
No. of units produced		2,000	2,000

The factory uses reverse cost method of accounting for by-products.

You are required to prepare statements showing :

- The joint cost allocable to Bomex.
- The product wise and overall profitability of the factory for April, 2011.

Inorganic Chemicals purchases salt and processes it into more-refined products such as caustic soda, chlorine, and PVC (Polyvinyl chloride). During the month of April, 2000, Inorganic Chemicals purchased salt for ` 40,000. Conversion cost of ` 60,000 were incurred upto the split-off point, at which time two saleable products were produced ; Caustic soda and chlorine can be further processed into PVC. The April production and sales information are as follows :

	Production	Sales	Sales price per Ton
Caustic Soda	1,200 tons	1,200 tons	` 50
Chlorine	800 tons		
PVC	500 tons	500 tons	` 200

All 800 tons of chlorine were further processed, at an incremental cost of ` 20,000 to yield 500 tons of PVC. There were no byproducts or scrap from this further processing of chlorine. There were no beginning or inventories of caustic soda, chlorine or PVC in April.

There is an active market for chlorine. Inorganic Chemicals could have sold all its April production of chlorine at ` 75 a ton.

Required ;

- i. Calculate, how the joint costs of ` 100,000 would be allocated between Caustic soda and chlorine under each of the following methods :
 - a. Sales value at split off ;
 - b. Physical measure (tons); and
 - c. Estimated net realizable value.
- ii. Lifetime Swimming Pool Products offer to purchase 800 tons of Chlorine in May, 2000 at ` 75 a ton. This sale would mean that no PVC would be produced in May. How would accepting the offer affect May Operating Income?



SUNMOON Ltd. produces 2,00,000 : 30,000; 25,000; 20,000 and 75,000 units of its five products A, B, C, D and E respectively in a manufacturing process and sells them at ` 17, ` 13, ` 8, ` 10 and ` 14 per unit. Except product D remaining products can be further processed and then can be sold at ` 25, ` 17, ` 12 and ` 20 per unit in case of A, B, C and E respectively. Raw material costs ` 35,90,000 and other manufacturing expenses cost ` 5,47,000 in the manufacturing process which are absorbed on the products on the basis of their 'Net realisable value'. The further processing costs of A, B, C and E are ` 12,50,000; ` 1,50,000; ` 50,000 and ` 1,50,000 respectively. Fixed costs are ` 4,73,000.

You are required to prepare the following in respect of the coming year:

- (a) Statement showing income forecast of the company assuming that none of its products are to be further processed.
- (b) Statement showing income forecast of the company assuming that products A, B, C and E are to be processed further.

Can you suggest any other production plan whereby the company can maximise its profits ? If yes, then submit a statement showing income forecast arising out of adoption of that plan.

XINT LTD. in the course of refining crude oil obtains four joint products P, Q, R and S. The total cost till the split off point was

PRODUCT	OUTPUT(GALLON)	SALES AMOUNT	SEPARATE COST
D	50000	1250000	260000
Q	10000	30000	20000
R	5000	50000	
S	8000	80000	10000

Required:

- (i) Determine the net income for each of the products if the joint costs are apportioned on the basis of sales value of the different products.
- (ii) Calculate the net income of each of the products if the company decides to sale the products at the split off point itself as-P@18, Q@ 1.50, R@ 10 and S @7.80 per gallon.
- (iii) Advise the Management of XINT LTD. as to whether the four products are to be sold at the split off point or after further processing.

CBA Ltd., manufactures certain grades of products known as M, B1 and B2. In course of manufacture of product M (main product), by-products - B1 and B2 emerge. The joint expenses of manufacture amount to ₹ 2,37,600.

All the three products are processed further after separation and sold as per details given below

		Product – B1	Product – B2
Sales (₹)	2,00,000	1,20,000	80,000
Cost incurred after separation (₹)	20,000	15,000	10,000
Profit as percentage on sales	25	20	15

Total fixed selling expenses are 10% of total cost of sales which are apportioned to the three products in the ratio of 20:40:40.

Required:

(i) Prepare a statement showing the apportionment of joint costs to the products (M, B1 and B2)

(ii) If the product B1 (by product) is not subject to further processing and is sold at the point of separation, for which there is a market at ₹1,00,440 without incurring any selling expenses, would you advise its disposal at this stage? Show the working

XYZ company obtains four different products namely M,N,O and P. The data on production and sale of these brands during 2022 is reproduced below.

Brand Name	M	N	O	P
Production & Sales (units)	5,00,000	3,00,000	40,000	70,000
Sale value (₹ Lakhs)	31	15	1.2	2.8

All the above beauty soaps are manufactured jointly up to a particular process. At split off point they are formed into cake-sand packed. The annual cost data were as under

Direct Material Cost	₹ 40 lakhs
Value added (includes profit at 25% on total cost)	₹ 10 lakhs

Out of the above brands, P is sold in unpacked condition without further processing while other 3 brands further processed at an additional cost

M	₹ 1,30,000
N	₹ 1,20,000
O	₹ 50,000

You are required to: -

- Work out the profit and cost of each brand of soap after allocating joint cost on the basis of Net Realisable value at split up point. (Per unit cost not required).
- Find out revised cost and profit on each brand if the company decides to sell all soaps at split up point at following prices: M ₹6.00; N ₹ 4.50; O ₹ 1.50 and P ₹ 4.00 per unit

Assume that for allocation of joint cost net realisable value method is used.

With the working results in (a) and (b) above advise XYZ company about the processing decision as to which soap to be sold at split of point and which to be processed further so as to maximize profit. Substantiate your decision with suitable costing technique.



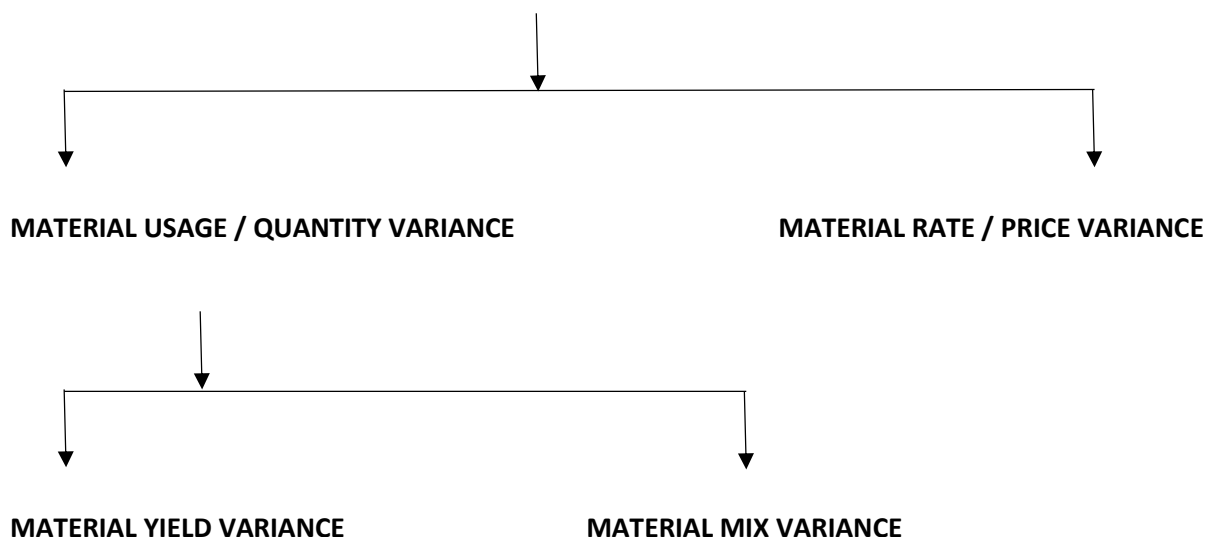
CISDON CHEM LTD. a multi-product manufacturing company, electrolysis common salt to obtain three products – CSD, CH and HY. During a costing period, the expenditure relating to the inputs for the common process amounted to ₹ 4,20,000. After separation expenses amounting to ₹ 1,90,000, ₹ 90,000 and ₹ 15,000 were incurred for CSD, CH, and HY respectively. The entire production of the Products was sold and ₹ 4,50,000, ₹ 3,00,000 and ₹ 72,000 were realized for the products, CSD, CH, and HY respectively. The selling expenses were estimated at 5% of the realization from the sale values. The company expected profits @ 15%, 12% and 10% of realization from the Sale of the products CSD, CH, and HY respectively.

Required:

Prepare a statement showing the apportionment of joint costs and profitability of each product.

STANDARD COSTING

MATERIAL COST VARIANCE



COST CARD

MATERIAL	SQ FOR ACTUAL OUTPUT	STD RATE	STD COST	ACTUAL QTY	ACTUAL RATE	ACTUAL COST	ACTUAL QTY IN STD PROP
A	1000	4		1200	5		
B	500	3		600	3.5		
C	300	2		360	1.8		
	1800			2160			

TREATMENT OF NORMAL LOSS

COST CARD

MATERIAL	STD QTY	SQ FOR ACTUAL OUTPUT	STD RATE	STD COST	ACTUAL QTY	ACTUAL RATE	ACTUAL COST
A	1000		4		1300	5	
B	500		3		800	3.5	
C	300		2		660	1.8	
	1800				2160		
(-) NORMAL LOSS @ 10%	(180)						
	1620						

ACTUAL OUTPUT – 2430 UNITS

The standard mix to produce one unit of product is as follows:

Material X	60 units @ ` 15 per unit	900
Material Y	80 units @ ` 20 per unit	1,600
Material Z	100 units @ ` 25 per unit	2,500
	240 units	

During the month of April, 10 units were actually produced and consumption was as follows:

Material X	640 units @ ` 17.50 per unit	11,200
Material Y	950 units @ ` 18.00 per unit	17,100
Material Z	870 units @ ` 27.50 per unit	23,925
	2460 units	

Calculate all material variances.

The standard cost of a certain mixture is as under:

60% of material A at ` 40 per tonne. 40% of Material B at ` 60 per tonne.

A standard loss of 20% is expected in production. The following actual cost data is given for the period:

140 tonne material A at a cost of ` 42 per tonne

110 tonne of material B at a cost of ` 56 per tonne

The quantity produced was 195 tonne of good product.

Traditional Tiles Ltd. makes tiles of size of $6'' \times 6'' \times 1/8''$. Calculate direct materials variances:

A standard mix of the compound required to produce 24,000 square feet of tiles $1/8''$ thick is as below:

Direct Material	Quantity kg.	Price per kg. (₹)
X	1380	70
Y	920	35
Z	1150	20

During December, 8 mixes were processed and actual materials consumed were :

Direct Material	Quantity kg.	Price per kg. (₹)
X	11,500	65
Y	6,670	30
Z	10,120	25

Actual production for December was 7,44,000 tiles.



J.K. Ltd. manufactures NXE by mixing three raw materials. For every batch of 100 kgs. of NXE, 125 kgs. of raw materials are used. In April, 2012, 60 batches were prepared to produce an output of 5,600 kgs. of NXE. The standard and actual particulars for April, 2012, are as follows :

Raw Materials	Standard		Actual	
	Mix	Price per kg.	Mix	Price per kg.
	%	`	%	`
A	50	20	60	21
B	30	10	20	8
C	20	5	20	6

Following data is extracted from the books of XYZ Ltd. for the month of January, 2020:

(i) Estimation-

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material-A	800	?	--
Material-B	600	30.00	18,000
			--

Normal loss was expected to be 10% of total input materials.

(ii) Actuals-

1480 kg of output produced.

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material-A	900	?	--
Material-B	?	32.50	--
			59,825

(iii) Other Information-

Material Cost Variance = ₹ 3,625 (F) Material Price Variance = ₹ 175 (F)

The following standards have been set for the production:

Material	Standard Mix	Standard Price (₹)
A	40%	40 per kg.
B	60%	30 per kg.

The standard loss in processing is 15%.

During July, 2018 the company produced 2,000 kg. of finished output.

The positions of stock and purchases for the month of July, 2018 are as under:

Material	Stock on 1st July, 2018	Stock on 31st July, 2018	Purchases during July 2018	
			Quantity	Amount (₹)
A	40 kg.	10 kg.	900 kg.	42.50
B	50 kg.	60 kg.	1,400 kg.	25.00

The company follows FIFO method of stock valuation.

A factory of GOXIN LTD. using standard costing system, manufactures a chemical product VON with three ingredient chemicals. A, B and C as per standard data given below:

Chemical	Percentage of total input	standard cost/kg
A	50%	40
B	30%	60
C	20%	95

There is a process loss of 5% during the course of manufacture.

The Management gives the following details for a certain week.

Chemical Consumed (	Quantity Purchased and issued	Actual Cost
A 234000	5200 kg	
B 219600	3600 kg	
C 158100	1700 kg	

Output of finished product – 10200kg

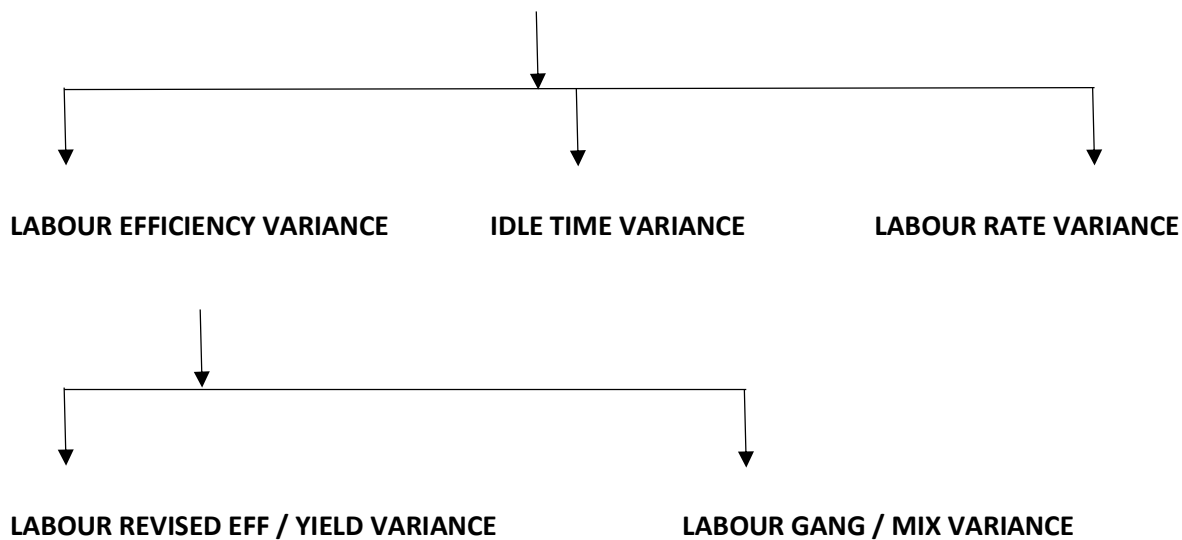
The standard material inputs required for 1,000 kgs. of a finished product are given below

Material	Quantity (in kg)	Standard rate per kg. (in ₹)
P	450	20
Q	400	40
R	250	60
	1,100	
Standard loss	100	
Standard output	1,000	

Actual production in a period was 20,000 kgs. of the finished product for which the actual quantities of material used and the prices paid thereof, are as under

Material	Quantity (in kgs)	Standard rate per kg. (in ₹)
P	10,000	19
Q	8,500	42
R	4,500	65

LABOUR COST VARIANCE



COST CARD

MATERIAL	SH FOR ACTUAL OUTPUT	STD RATE	STD COST	ACTUAL HOUR	ACTUAL RATE	ACTUAL COST	ACTUAL PRODUCTIVE HR	IDLE TIME
SKILLED	1000	4		1200	5			
SEMI SKILLED	500	3		600	3.5			
UNSKILLED	300	2		360	1.8			
	1800			2160				

ABNORMAL IDLE TIME – 5% OF ACTUAL HOUR

The standard labour employment and the actual labour engaged in a 40 hours week for a job are as under:

Category of Workers	Standard		Actual	
	No of workers	Wage rate / hr	No of workers	Wage rate / hr
Skilled	30	70	40	75
Semi-skilled	15	65	10	60
Unskilled	10	50	5	52

4 hours were lost due to machine breakdown

Standard output: 2,000 units; Actual output: 1,600 units

Calculate:

(i) Labour Cost Variance (ii) Labour Efficiency Variance (iii) Labour Idle Time Variance.

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

	Skilled Workers	Semi-skilled workers	Unskilled Workers
Standard no. of workers in the gang	32	12	6
Actual no. of workers employed	28	18	4
Standard wage rate per hour	3	2	1
Actual wage rate per hour	4	3	2

During The 40 Hours Working Week, The Gang Produced 1,800 Standard Labour Hours Of Work.

following information has been provided by a company:

Number of units produced and sold	6,000
Standard labour rate per hour	` 8
Standard hours required for 6,000 units	–
Actual hours required	17,094 hours
Labour efficiency	105.3%
Labour rate variance	` 68,376 (A)

You are required to calculate:

- | | |
|----------------------------------|--|
| (i) Actual labour rate per hour | (ii) Standard hours required for 6,000 units |
| (iii) Labour Efficiency variance | (iv) Standard labour cost per unit |
| (v) Actual labour cost per unit. | |

Following information is given regarding standard composition and standard rates of a gang workers:

Standard composition	Standard hourly rate
100 Men	₹0.625
50 Women	₹0.400
50 Boys	₹0.350

According to given specifications, a week consists of 40 hours and standard output for a week is 1,000 units.

In a particular week, gang consisted of 130 men, 40 women and 30 boys and actual wages were paid as follows:

Men @ ₹0.6 per hour Women @ ₹0.425

Boys @ ₹0.325 per hour

Two hours were lost in the week due to abnormal sale time. Actual production was 960 units in the week.

- (a) M/s Picaso Inc. is a company which follows standard costing system. The details regarding the composition and the weekly wage rates of labour force engaged on Job No. "XP – 25".

Which is scheduled to be completed in 30 weeks are as follows:

Category of Workers	Standard		Actual	
	No. of workers	Weekly Wage Rate per worker (₹)	No. of Workers	Weekly Wage Rate per worker (₹)
Skilled	75	60	70	70
Semi-skilled	45	40	30	50
Unskilled	60	30	80	20

The work on the Job is actually completed in 32 weeks.

You, as the cost accountant of the company, are asked to ANALYSE the following Labour Variances and report the same to the manager:

- (i) Labour Cost Variance
- (ii) Labour Rate Variance
- (iii) Labour Efficiency Variance
- (iv) Labour Revised Efficiency Variance
- (v) Labour Mix Variance

ABC Ltd. had prepared the following estimation for the month of April:

	Quantity	Rate (₹)	Amount (₹)
Material-A	800 kg.	45.00	36,000
Material-B	600 kg.	30.00	18,000
Skilled labour	1,000 hours	37.50	37,500
Unskilled labour	800 hours	22.00	17,600

Normal loss was expected to be 10% of total input materials and an idle labour time of 5% of expected labour hours was also estimated.

At the end of the month the following information has been collected from the cost accounting department:

The company has produced 1,480 kg. finished product by using the followings:

	Quantity	Rate (₹)	Amount (₹)
Material-A	900 kg.	43.00	38,700
Material-B	650 kg.	32.50	21,125
Skilled labour	1,200 hours	35.50	42,600
Unskilled labour	860 hours	23.00	19,780



COST ACCOUNTING RECORD

KEY LEDGERS WITH OPENING BALANCES

1. STORES LEDGER CONTROL ACCOUNT
2. WIP CONTROL ACCOUNT
3. FG CONTROL ACCOUNT
4. GENERAL / NOMINAL LEDGER ADJUSTMENT / COST LEDGER CONTROL ACCOUNT
5. OVERHEAD CONTROL ACCOUNT*****

JOURNAL ENTRIES

ACCOUNT	PARTICULARS	JOURNAL ENTRY
STORES LEDGER CONTROL ACCOUNT	MATERIAL PURCHASED	SLC A/C.....DR TO GLA A/C
	PURCHASE RETURN	GLA A/C.....DR TO SLC A/C
	DIRECT MATERIAL ISSUED	WIP CONTROL A/C.....DR TO SLC A/C
	INDIRECT MATERIAL ISSUED	PROD O/H CONTROL A/C.....DR O & A O/H CONTROL A/C.....DR S & D O/H CONTROL A/C.....DR TO SLC A/C
	NORMAL LOSS	PROD O/H CONTROL A/C.....DR TO SLC A/C
	ABNORMAL LOSS	COSTIG PL A/C.....DR TO SLC A/C
WAGES CONTROL ACCOUNT	WAGES PAID / INCURRED	WAGES CONTROL A/C.....DR TO GLA A/C
	DIRECT WAGES	WIP CONTROL A/C.....DR TO WAGES CONTROL A/C
	INDIRECT WAGES	PROD O/H CONTROL A/C.....DR

		O & A O/H CONTROL A/C.....DR S & D O/H CONTROL A/C.....DR TO WAGES CONTROL A/C
DIRECT EXPENSE CONTROL ACCOUNT	DIRECT EXPENSE PAID / INCURRED	DIRECT EXP CONTROL A/C.....DR TO GLA A/C
	DIRECT EXPENSE TRANSFERRED	WIP CONTROL A/C.....DR TO DIRECT EXP CONTROL A/C
PRODN OVERHEAD CONTROL	PRODN O/H INCURRED / PAID	PRODN OH CONTROL A/C.....DR TO GLA A/C
	PRODN O/H ABSORBED	WIP CONTROL A/C.....DR TO PRODN OH CONTROL A/C
O & A OVERHEAD CONTROL	O & A O/H INCURRED / PAID	O & A OH CONTROL A/C.....DR TO GLA A/C
	O & A O/H ABSORBED	FG CONTROL A/C.....DR TO O & A OH CONTROL A/C
S & D OVERHEAD CONTROL	S & D O/H INCURRED / PAID	S & D OH CONTROL A/C.....DR TO GLA A/C
	S & D O/H ABSORBED	COST OF SALES A/C.....DR TO S & D OH CONTROL A/C
OVERHEAD CONTROL ACCOUNT	UNDER RECOVERY / ABSORPTION OF O/H	COSTING PL A/C.....DR TO OH CONTROL A/C
	OVER RECOVERY / ABSORPTION OF O/H	OH CONTROL A/C.....DR TO COSTING PL A/C
TRANSFER ENTRIES	FINISHED GOODS PRODUCED	FG CONTROL A/C.....DR TO WIP CONTROL A/C
	COST OF GOODS SOLD	COST OF SALES A/C.....DR TO FG CONTROL A/C
	COST OF SALES TRANSFERRED	COSTING PL A/C.....DR TO COST OF SALES A/C
COSTING PL	SALES	GLA A/C.....DR TO COSTING PL A/C
	PROFIT	COSTING PL A/C.....DR TO GLA A/C
	LOSS	GLA A/C.....DR TO COSTING PL A/C

RECONCILIATION OF FINANCIAL PROFIT AND COSTING PROFIT

STEP 1- PREPARE COST SHEET TO CALCULATE PROFIT AS PER COSTING

- ✓ FACTORY O/H , O & A O/H , S & D O/H ABSORBED TO BE CALCULATED ON THE BASIS OF COSTING INFORMATION
- ✓ VALUE OF CLOSING STOCK OF FG IS TO BE CALCULATED ON THE BASIS OF COST OF PRODUCTION

STEP 2 – PREPARE TRADING , PROFIT & LOSS ACCOUNT TO CALCULATE PROFIT AS PER FINANCIAL

STEP 3 – PREPARE RECONCILIATION STATEMENT / MEMORANDUM RECONCILIATION ACCOUNT

PARTICULARS	AMOUNT
PROFIT AS PER COSTING	
+ INCOME INCLUDED ONLY IN FINANCIAL ACCOUNTS	
- EXPENSES INCLUDED ONLY IN FINANCIAL ACCOUNTS	
- APPROPRIATION OF PROFIT ONLY IN FINANCIAL ACCOUNT	
+ NOTIONAL COST / OPPORTUNITY COST / IMPUTED COST INCLUDED ONLY IN COST ACCOUNTS	
+ / - DIFFERENCE IN METHOD OF CALCULATION OF DEPRECIATION	
- UNDER RECOVERY / UNDER ABSORPTION OF OVERHEAD	
+ OVER RECOVERY / OVER ABSORPTION OF OVERHEAD	
+ OVER VALUATION OF CLOSING FG IN FINANCIAL ACCOUNTS	

- UNDER VALUATION OF CLOSING FG IN FINANCIAL ACCOUNTS	
+ UNDER VALUATION OF OPENING FG IN FINANCIAL ACCOUNTS	
- OVER VALUATION OF OPENING FG IN FINANCIAL ACCOUNTS	
PROFIT AS PER FINANCIAL ACCOUNTS	

MEMORANDUM RECONCILIATION ACCOUNT

PARTICULARS	AMT	PARTICULARS	AMT
TO LOSS AS PER COSTING		BY PROFIT AS PER COSTING	
TO EXPENSES INCLUDED ONLY IN FINANCIAL ACCOUNTS		BY INCOME INCLUDED ONLY IN FINANCIAL ACCOUNTS	
TO APPROPRIATION OF PROFIT ONLY IN FINANCIAL ACCOUNT		BY NOTIONAL COST / OPPORTUNITY COST / IMPUTED COST INCLUDED ONLY IN COST ACCOUNT	
TO DIFFERENCE IN METHOD OF CALCULATION OF DEPRECIATION		BY DIFFERENCE IN METHOD OF CALCULATION OF DEPRECIATION	
TO UNDER RECOVERY / UNDER ABSORPTION OF OVERHEAD		BY OVER RECOVERY / OVER ABSORPTION OF OVERHEAD	
TO UNDER VALUATION OF CLOSING FG IN FINANCIAL ACCOUNTS		BY OVER VALUATION OF CLOSING FG IN FINANCIAL ACCOUNTS	
TO OVER VALUATION OF OPENING FG IN FINANCIAL ACCOUNTS		BY UNDER VALUATION OF OPENING FG IN FINANCIAL ACCOUNTS	
TO PROFIT AS PER FINANCIAL		BY LOSS AS PER FINANCIAL	

R Limited showed a net loss of ` 35,400 as per their cost accounts for the year ended 31st March, 2014. However, the financial accounts disclosed a net profit of ` 67,800 for the same period. The following information were revealed as a result of scrutiny of the figures of cost accounts and financial accounts:

	(`)
(i) Administrative overhead under recovered	25,500
(ii) Factory overhead over recovered	1,35,000
(iii) Depreciation under charged in Cost Accounts	26,000
(iv) Dividend received	20,000
(v) Loss due to obsolescence charged in Financial Accounts	16,800
(vi) Income tax provided	43,600
(vii) Bank interest credited in Financial Accounts	13,600
(viii) Value of opening stock:	
In Cost Accounts	1,65,000
In Financial Accounts	1,45,000
(ix) Value of closing stock:	
In Cost Accounts	1,25,500
In Financial Accounts	1,32,000
(x) Goodwill written-off in Financial Accounts	25,000
(xi) Notional rent of own premises charged in Cost Accounts	60,000
(xii) Provision for doubtful debts in Financial Accounts	15,000

Prepare a reconciliation statement by taking costing net loss as base.

A manufacturing company has disclosed net loss of ` 48,700 as per their cost accounting records. However their financial accounting disclosed net profit of ` 35,400. A scrutiny of data revealed the following information:

(i)	Factory overheads under absorbed	30,500
(ii)	Administrative overheads over absorbed	65,000
(iii)	Depreciation charged in financial accounts	2,25,000
(iv)	Depreciation charged in cost accounts	2,70,000
(v)	Income-tax provision	52,400
(vi)	Transfer fee (credited in financial accounts)	10,200
(vii)	Obsolescence loss charged in financial accounts	20,700
(viii)	Notional rent of own premises charged in cost accounts	54,000
(ix)	Value of Opening stock:	
	(a) in cost accounts	1,38,000
	(b) in financial accounts	1,15,000
(x)	Value of closing stock:	
	(a) in cost accounts	1,22,000
	(b) in financial accounts	1,12,500



The figures have been extracted from the financial accounts of a manufacturing firm for the first year of its operation.

Direct material consumption	50,00,000
Direct wages	30,00,000
Factory overheads	16,00,000
Administrative overheads	7,00,000
Selling and distribution overheads	9,60,000
Bad Debts	80,000
Preliminary Expenses written off	40,000
Legal charges	10,000
Dividends received	1,00,000
Interest on deposit received	20,000
Sales - 1,20,000 units	1,20,00,000
Closing Stock :	
Finished Stock -4,000 units	3,20,000
Work-in-progress	2,40,000

The Cost Accounts for the same period reveal that the Direct material consumption was ` 56,00,000; Factory overhead is recovered at 20% on Prime cost ; Admn. Overhead is recovered @ ` 6 per unit of production ; and Selling and distribution overheads are recovered at ` 8.00 per unit sold.

You are required to prepare costing, and Financial Profit and Loss Accounts and reconcile the difference in the Profits as arrived at in the two sets of accounts.

The following information has been extracted from the financial books of ABON LTD. for the year ended March 31, 2023

Particulars	Amount
Sales (20000 units)	40,00,000
Materials	16,00,000
Wages	8,00,000
Factory Overheads	7,20,000
Office and Administrative Overheads	4,16,000
Selling and Distribution Overhead	2,88,000
Closing stock of Finished Goods (1230 units	2,40,000
Work-in-Progress (closing):	
Materials 48000	
Labour 32000	
Overheads (Factory) 32000	
Goodwill written off	3,20,000
Interest on Capital	32000
Dividend received	10000
Interest received	5000

In the Costing records, factory overhead is charged at 100% of wages, administration overhead at 10% of works cost and selling and distribution overhead at 16 per unit sold.

Required:

- (i) Find out the profit as per Cost Accounts
- (ii) Prepare the Profit and Loss Account as per Financial Books
- (iii) Prepare a statement reconciling Profit shown by Cost and Financial Accounts for the year ended March 31, 2023.



Essbee Ltd. maintains Integrated Accounts of Cost and Financial Accounts. Journalize how to the following transactions in the books of the firm

Particulars	Amount
Raw material purchased on credit	800000
Direct materials issued to production	600000
Wages paid (30% indirect)	480000
Wages charged to production	336000
Manufacturing expenses incurred	380000
Manufacturing overhead charged to production	360000
Selling and distribution cost	80000
Finished products (at cost)	800000
Sales	1160000
Receipts from debtors	276000

Prepare and pass the journal entries for the following transactions in a double entry cost accounting system

Particulars	Amount (₹)
A) Issue of Material:	
- Direct	5,50,000
- Indirect	1,50,000
B) Allocation of wages and salaries:	
- Direct	2,00,000
- Indirect	40,000
C) Overheads absorbed in jobs:	
- Factory	1,50,000
- Administration	50,000
- Selling	30,000
D) Under / Over absorbed overhead:	
- Factory (Over)	20,000
- Administration (Under)	10,000

The following information is available from the financial books of BG Mfg. Co. having a normal production capacity of 120,000 units for the year ended 31st March, 2021:

- *Sales Rs 20, 00,000 (100,000 units).
 - *There was no opening and closing stock of finished units.
 - *Direct material and direct wages cost were Rs 10, 00,000 and Rs 5, 00,000 respectively.
 - *Actual factory expenses were Rs 3, 00,000 of which 60% are fixed.
 - *Actual administrative expenses related with production activities were Rs 90,000 which are completely fixed.
 - *Actual selling and distribution expenses were Rs 60,000 of which 40% are fixed.
 - *Interest and dividends received Rs 30,000. Required:
- (i) Find out profit as per financial books for the year ended 31st March, 2021
 - (ii) What is the amount of profit as per cost accounts for the year ended 31st March, 2021 assuming that the indirect expenses are absorbed on the basis of normal production capacity; (4)
 - (iii) What is the amount of Factory expenses under charged in cost Accounts

In case, there are disagreements in items and amounts appearing in Financial Accounts and Cost Accounts, the Profit/Loss figures as per Financial Accounts may not agree with that of Cost Accounts and for which a Reconciliation Statement is usually prepared.

How much should be added to/deducted from Profit/Loss as per Cost Records to arrive at Profit/Loss as per Financial Accounts with respect to each of the following:

- (1) Over recovery and Under-recovery of administration overhead
- (2) Over recovery and Under-recovery of selling and distribution overhead
- (3) Difference in Value of Closing Stock
- (4) Incomes not included and Expenses not included in Cost Accounts

The following is the Trading & Profit and Loss Account of ABC & Co

Particulars	Rs.	Particulars	Rs.
To Materials Consumed	23,01,000	By Sales (30,000 units)	48,75,000
To Direct Wages	12,05,750	By Stock of Finished Goods (1,000 units)	1,30,000
To Production Overheads	6,92,250	By W.I.P: Rs. Material 55,250 Wages 26,000 Production O/H 16,250	97,500
To Administration Overheads	3,10,375	By Interest on Bank deposit	65,000
To Selling & Distribution Overheads	3,68,875	By Dividends	3,90,000
To Preliminary Expenses written off	22,790		
To Goodwill written off	45,000		
To Fines	3,250		
To Interest of Mortgage	13,000		
To Loss on Sale of Machine	16,250		
To Taxation	1,95,000		
To Net Profit	3,83,960		
	55,57,500		55,57,500

ABC & Co. manufactures a standard unit. The cost accounting records of the firm shows the following information:

Production overheads have been charged at 20% on prime cost.

Administration overheads have been recovered at Rs. 9.75 per finished unit. Selling and distribution overheads have been recovered at Rs. 13 per unit sold\

You are required to compute the following as it would appear in Cost Records:

1. Cost of Production of 31,000 units

Costing Profit/Loss on sale of 30,000 units

