

MOCK TEST PAPER –2
INTERMEDIATE: GROUP – I
PAPER – 3: COST AND MANAGEMENT ACCOUNTING

Answers are to be given only in English except in the case of the candidates who have opted for Hindi medium. If a candidate has not opted for Hindi medium his/ her answer in Hindi will not be valued.

Question No. 1 is compulsory.

*Attempt any **four** questions from the remaining **five** questions.*

Working notes should form part of the answer.

Time Allowed – 3 Hours

Maximum Marks – 100

1. Answer the following:

- (a) NG Ltd. has an annual fixed cost of ₹ 98,50,000. In the year 2022-23, sales amounted to ₹7,80,60,000 as compared to ₹5,93,10,000 in the preceding year 2021-22. Profit in the year 2022-23 is ₹37,50,000 more than that in 2021-22.

Required:

- (i) CALCULATE Break-even sales of the company.
(ii) DETERMINE profit/ loss on a forecasted sales volume of ₹8,20,00,000.
(iii) If there is a reduction in selling price by 10% in the financial year 2022-23 and company desires to earn the same amount of profit as in 2021-22, COMPUTE the required sales amount?
- (b) SP Ltd. has prepared budget for the coming year for its two products A and B.

	Product A (₹)	Product B (₹)
Production & Sales unit	6,000 units	9,000 units
Raw material cost per unit	60.00	42.00
Direct labour cost per unit	30.00	18.00
Variable overhead per unit	12.00	6.00
Fixed overhead per unit	8.00	4.00
Selling price per unit	120.00	78.00

After some marketing efforts, the sales quantity of the Product A & B can be increased by 1,500 units and 500 units respectively but for this purpose the variable overhead and fixed overhead will be increased by 10% and 5% respectively for the both products.

You are required to PREPARE flexible budget for both the products:

- (i) Before marketing efforts
(ii) After marketing efforts
- (c) A manufacturing company disclosed a net profit ₹10,20,000 as per their cost accounts for the year ended 31st March, 2023. The financial accounts however disclosed a net profit of ₹ 6,94,000 for the same period. The following information was revealed as a result of scrutiny of the figures of both the sets of accounts.

	(₹)
(i) Factory Overheads under-absorbed	80,000
(ii) Administration Overheads over-absorbed	1,20,000
(iii) Depreciation charged in Financial Accounts	6,50,000
(iv) Depreciation charged in Cost Accounts	5,50,000
(v) Interest on investments not included in Cost Accounts	1,92,000
(vi) Income-tax provided	1,08,000
(vii) Interest on loan funds in Financial Accounts	4,90,000
(viii) Transfer fees (credit in financial books)	48,000
(ix) Stores adjustment (credit in financial books)	28,000
(x) Dividend received	64,000

PREPARE a Reconciliation statement.

- (d) A company manufactures 10,000 units of a product per month. The cost of placing an order is ₹200. The purchase price of the raw material is ₹20 per kg. The re-order period is 4 to 8 weeks. The consumption of raw materials varies from 200 kg to 900 kg per week, the average consumption being 550 kg. The carrying cost of inventory is 20% per annum.

You are required to CALCULATE:

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

[4 × 5 Marks = 20 Marks]

2. (a) JD Ltd. produces and markets a very popular product called 'X'. The company is interested in presenting its budget for the first quarter of 2023.

The following information are made available for this purpose:

- (i) It expects to sell 50,000 bags of 'X' during the first quarter of 2023 at the selling price of ₹ 900 per bag.
 (ii) Each bag of 'X' requires 2.5 kgs. of a raw – material called 'Y' and 7.5 kgs. of raw – material called 'Z'.
 (iii) Stock levels are planned as follows:

Particulars	Beginning of Quarter	End of Quarter
Finished Bags of 'X' (Nos.)	15,000	11,000
Raw – Material 'Y' (Kgs.)	32,000	26,000
Raw – Material 'Z' (Kgs.)	57,000	47,000
Empty Bag (Nos.)	37,000	28,000

- (iv) 'Y' cost ₹120 per Kg., 'Z' costs ₹20 per Kg. and 'Empty Bag' costs ₹80 each.
 (v) It requires 9 minutes of direct labour to produce and fill one bag of 'X'. Labour cost is ₹50 per hour.
 (vi) Variable manufacturing costs are ₹45 bag. Fixed manufacturing costs ₹30,00,000 per quarter.
 (vii) Variable selling and administration expenses are 5% of sales and fixed administration and selling expenses are ₹20,50,000 per quarter.

Required

- (i) PREPARE a production budget for the said quarter.
- (ii) PREPARE a raw – material purchase budget for ‘Y’, ‘Z’ and ‘Empty Bags’ for the said quarter in quantity as well as in rupees.
- (iii) COMPUTE the budgeted variable cost to produce one bag of ‘X’.
- (iv) PREPARE a statement of budgeted net income for the said quarter and show both per unit and total cost data. **[10 Marks]**

(b) K Ltd. has the following expenditures for the year ended 31st March, 2023:

Sl. No.		Amount (₹)	Amount (₹)
(i)	Raw materials purchased		10,00,00,000
(ii)	Freight inward		11,20,600
(iii)	Wages paid to factory workers		29,20,000
(iv)	Royalty paid for production		1,72,600
(v)	Amount paid for power & fuel (Directly related to production)		4,62,000
(vi)	Job charges paid to job workers		8,12,000
(vii)	Stores and spares consumed		1,12,000
(viii)	Depreciation on office building		56,000
(ix)	Repairs & Maintenance paid for:	48,000	
	- Plant & Machinery		
	- Sales office building	18,000	66,000
(x)	Insurance premium paid for:		
	- Plant & Machinery	31,200	
	- Factory building	18,100	49,300
(xi)	Expenses paid for quality control check activities		19,600
(xii)	Research & development cost paid improvement in production process		18,200
(xiii)	Expenses paid for pollution control and engineering & maintenance		26,600
(xiv)	Salary paid to Sales & Marketing mangers:		10,12,000
(xv)	Salary paid to General Manager		12,56,000
(xvi)	Packing cost paid for:		
	- Primary packing necessary to maintain quality	96,000	
	- For re-distribution of finished goods	1,12,000	2,08,000
(xvii)	Fee paid to independent directors		2,20,000
(xviii)	Performance bonus paid to sales staffs		1,80,000
(xix)	Value of stock as on 1 st April, 2022:		
	- Raw materials	18,00,000	
	- Work-in-process	9,20,000	
	- Finished goods	11,00,000	38,20,000

(xx)	Value of stock as on 31 st March, 2023:		
	- Raw materials	9,60,000	
	- Work-in-process	8,70,000	
	- Finished goods	18,20,000	36,50,000

Amount realized by selling of scrap and waste generated during manufacturing process – ₹86,000/-

From the above data you are requested to PREPARE Statement of cost for K Ltd. for the year ended 31st March, 2023, showing (i) Prime cost, (ii) Factory cost, (iii) Cost of Production, (iv) Cost of goods sold and (v) Cost of sales. **[10 Marks]**

3. (a) (1) KD Ltd. is following Activity based costing. Budgeted overheads, cost drivers and volume are as follows:

Cost pool	Budgeted overheads (₹)	Cost driver	Budgeted volume
Material procurement	18,42,000	No. of orders	1,200
Material handling	8,50,000	No. of movement	1,240
Maintenance	24,56,000	Maintenance hours	17,550
Set-up	9,12,000	No. of set-ups	1,450
Quality control	4,42,000	No. of inspection	1,820

The company has produced a batch of 7,600 units, its material cost was ₹24,62,000 and wages ₹4,68,500. Usage activities of the said batch are as follows:

Material orders	56
Material movements	84
Maintenance hours	1,420 hours
Set-ups	60
No. of inspections	18

Required:

- (i) CALCULATE cost driver rates.
(ii) CALCULATE the total and unit cost for the batch.
(2) The following figures are related to KG Limited for the year ending 31st March, 2023:
Sales - 48,000 units @ ₹ 400 per unit;
P/V Ratio 25% and Break-even Point 50% of sales.

You are required to CALCULATE:

- (i) Fixed cost for the year
(ii) Profit earned for the year
(iii) Units to be sold to earn a target net profit of ₹ 22,00,000 for a year.
(iv) Number of units to be sold to earn a net income of 25% on cost. **[5×2=10 Marks]**
- (b) ABC Ltd. operates a simple chemical process to convert a single material into three separate items, referred to here as X, Y and Z. All three end products are separated simultaneously at a single split-off point.

Product X and Y are ready for sale immediately upon split off without further processing or any other additional costs. Product Z, however, is processed further before being sold. There is no available market price for Z at the split-off point.

The selling prices quoted here are expected to remain the same in the coming year. During 2022-23, the selling prices of the items and the total amounts sold were:

X – 186 tons sold for ₹3,000 per ton

Y – 527 tons sold for ₹2,250 per ton

Z – 736 tons sold for ₹1,500 per ton

The total joint manufacturing costs for the year were ₹12,50,000. An additional ₹6,20,000 was spent to finish product Z.

There were no opening inventories of X, Y or Z at the end of the year. The following inventories of complete units were on hand:

X 180 tons

Y 60 Tons

Z 25 tons

There was no opening or closing work-in-progress.

Required:

COMPUTE the cost of inventories of X, Y and Z and cost of goods sold for year ended March 31, 2023, using Net realizable value (NRV) method of joint cost allocation. **[10 Marks]**

4. (a) KV Ltd. manufactures luggage trolleys for airports. The factory, in which the company undertakes all of its production, has two production departments- 'Fabrication' and 'Assembly', and two service departments- 'Stores' and 'Maintenance'.

The following information have been extracted from the company's budget for the financial year ended 31st March, 2023:

Particulars	₹
Allocated Overhead Costs	
Fabrication Department	15,52,000
Assembly Department	7,44,000
Stores Department	2,36,000
Maintenance Department	1,96,000
Other Overheads	
Factory rent	15,28,000
Factory building insurance	1,72,000
Plant & machinery insurance	1,96,000
Plant & Machinery Depreciation	2,65,000
Subsidy for staffs' canteen	4,48,000

Direct Costs	₹	₹
Fabrication Department:		
Material	63,26,000	
Labour	8,62,000	71,88,000

Assembly Department:		
Material	1,42,000	
Labour	13,06,000	14,48,000

The following additional information is also provided:

	Fabrication Department	Assembly Department	Stores Department	Maintenance Department
Floor area (square meters)	24,000	10,000	2,500	3,500
Value of plant & machinery (₹)	16,50,000	7,50,000	75,000	1,75,000
No. of stores requisitions	3,600	1,400	---	---
Maintenance hours required	2,800	2,300	400	---
No. of employees	120	80	38	12
Machine hours	30,00,000	60,000		
Labour hours	70,000	26,00,000		

Required:

- PREPARE a table showing the distribution of overhead costs of the two service departments to the two production departments using step method; and
 - CALCULATE the most appropriate overhead recovery rate for each department. **[10 Marks]**
- (b) Following are the standard cost for a product-X:

	(₹)
Direct materials 10 kg @ ₹ 90 per kg	900
Direct labour 8 hours @ ₹100 per hour	800
Variable Overhead 8 hours @ ₹15 per hour	120
Fixed Overhead	400
	2,220

Budgeted output for the year was 2,000 units. Actual output is 1,800 units.

Actual cost for year is as follows:

	(₹)
Direct Materials 17,800 Kg @ ₹ 92 per Kg.	16,37,600
Direct Labour 14,000 hours @ ₹ 104 per hour	14,56,000
Variable Overhead incurred	2,17,500
Fixed Overhead incurred	7,68,000

You are required to CALCULATE:

- Material Usage Variance
- Material Price Variance
- Material Cost Variance
- Labour Efficiency Variance
- Labour Rate Variance
- Labour Cost Variance

(vii) Variable Overhead Cost Variance

(viii) Fixed Overhead Cost Variance.

[10 Marks]

5. (a) MT Ltd. pays the followings to skilled workers engaged in production works. The following are the employee benefits paid to the employees:

(a)	Basic salary per day	₹1,000
(b)	Dearness allowance (DA)	20% of basic salary
(c)	House rent allowance	16% of basic salary
(d)	Transport allowance	₹50 per day of actual work
(e)	Overtime	Twice the hourly rate (considers basic and DA), only if works more than 9 hours a day otherwise no overtime allowance. If works for more than 9 hours a day then overtime is considered after 8th hours.
(f)	Work of holiday and Sunday	Double of per day basic rate provided works atleast 4 hours. The holiday and Sunday basic is eligible for all allowances and statutory deductions.
(h)	Earned leave & Casual leave	These are paid leave.
(h)	Employer's contribution to Provident fund	12% of basic and DA
(i)	Employer's contribution to Pension fund	7% of basic and DA

The company normally works 8-hour a day and 26-day in a month. The company provides 30 minutes lunch break in between.

During the month of August 2020, Mr. Z works for 23 days including 15th August and a Sunday and applied for 3 days of casual leave. On 15th August and Sunday he worked for 5 and 6 hours respectively without lunch break.

On 5th and 13th August he worked for 10 and 9 hours respectively.

During the month Mr. Z worked for 100 hours on Job no.HT200.

You are required to CALCULATE:

- Earnings per day
- Effective wages rate per hour of Mr. Z.
- Wages to be charged to Job no.HT200

[10 Marks]

- (b) Arnav LMV Pvt. Ltd, operates cab/ car rental service in Delhi/NCR. It provides its service to the offices of Noida, Gurugram and Faridabad. At present it operates CNG fueled cars but it is also considering to upgrade these into Electric vehicle (EV). The following details related with the owning of CNG & EV propelled cars are as tabulated below:

Particulars	CNG Car	EV Car
Car purchase price (₹)	9,20,000	15,20,000
Govt. subsidy on purchase of car (₹)	--	1,50,000
Life of the car	15 years	10 years
Residual value (₹)	95,000	1,70,000
Mileage	20 km/kg	240 km per charge

Electricity consumption per full charge	--	30 Kwh
CNG cost per Kg (₹)	90	--
Power cost per Kwh (₹)	--	7.60
Annual Maintenance cost (₹)	8,000	5,200
Annual insurance cost (₹)	7,600	14,600
Tyre replacement cost in every 5 -year (₹)	16,000	16,000
Battery replacement cost in every 8- year (₹)	12,000	5,40,000

Apart from the above, the following are the additional information:

Particulars	
Average distance covered by a car in a month	1,500 km
Driver's salary (₹)	20,000 p.m
Garage rent per car (₹)	4,500 p.m
Share of Office & Administration cost per car (₹)	1,500 p.m

Required:

- (i) CALCULATE the operating cost of vehicle per month per car for both CNG & EV options.

[10 Marks]

6. (a) EXPLAIN the difference between controllable & uncontrollable costs?
 (b) DEFINE cost plus contract? STATE its advantages.
 (c) "Is reconciliation of cost accounts and financial accounts necessary in case of integrated accounting system?" EXPLAIN.
 (d) DISCUSS the impact of Information Technology in Cost Accounting.

[4 × 5 =20 Marks]

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PAPER – 3: COST MANAGEMENT ACCOUNTING

Suggested Answers/ Hints

1. (a) (i) Break-even sales = $\frac{\text{Fixed Cost}}{\text{P/V Ratio}}$

$$\text{P/V Ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100 \text{ or, } \frac{\text{₹ } 37,50,000}{\text{₹ } 7,80,60,000 - \text{₹ } 5,93,10,000} \times 100$$

$$\text{Or, } \frac{\text{₹ } 37,50,000}{\text{₹ } 1,87,50,000} \times 100 \text{ or, } 20\%$$

$$\text{Break-even sales} = \frac{\text{₹ } 98,50,000}{20\%} = \text{₹ } 4,92,50,000$$

(ii) Profit/ loss = Contribution – Fixed Cost
= ₹8,20,00,000 × 20% - ₹98,50,000
= ₹1,64,00,000 – ₹98,50,000 = ₹65,50,000

(iii) To earn same amount of profit in 2022-23 as it was in 2021-22, the company has to earn the same amount of contribution as it had earned in 2021-22.

Sales – Variable cost = Contribution equal to 2021-22 contribution

$$\begin{aligned} \text{Contribution in 2021-22} &= \text{Sales in 2021-22} \times \text{P/V Ratio in 2021-22} \\ &= \text{₹ } 5,93,10,000 \times 20\% = \text{₹ } 1,18,62,000 \end{aligned}$$

Let the number of units to be sold in 2022-23 = X

Sales in 2022-23 – Variable cost in 2022-23 = Desired Contribution

$$90 X - 80 X = \text{₹ } 1,18,62,000$$

$$\text{Or, } 10 X = 1,18,62,000$$

$$\text{Or, } X = 11,86,200 \text{ units}$$

Therefore, Sales amount required to earn a profit equal to 2021-22 profit

$$= \text{₹ } 90 \times 11,86,200 \text{ units} = \text{₹ } 10,67,58,000$$

(b) (i) **Flexible Budget before marketing efforts:**

	Product A (₹) 6,000 units		Product B (₹) 9,000 units	
	Per unit	Total	Per unit	Total
Sales	120.00	7,20,000	78.00	7,02,000
Raw material cost	60.00	3,60,000	42.00	3,78,000
Direct labour cost per unit	30.00	1,80,000	18.00	1,62,000
Variable overhead per unit	12.00	72,000	6.00	54,000
Fixed overhead per unit	8.00	48,000	4.00	36,000
Total cost	110.00	6,60,000	70.00	6,30,000
Profit	10.00	60,000	8.00	72,000

(ii) Flexible Budget after marketing efforts:

	Product A (₹)		Product B (₹)	
	7,500 units		9,500 units	
	Per unit	Total	Per unit	Total
Sales	120.00	9,00,000	78.00	7,41,000
Raw material cost	60.00	4,50,000	42.00	3,99,000
Direct labour cost per unit	30.00	2,25,000	18.00	1,71,000
Variable overhead per unit	13.20	99,000	6.60	62,700
Fixed overhead per unit	6.72	50,400	3.98	37,800
Total cost	109.92	8,24,400	70.58	6,70,500
Profit	10.08	75,600	7.42	70,500

(c) Statement of Reconciliation

Particulars	Amount (₹)	Amount (₹)
Net profit as per Cost accounts		10,20,000
Add:		
Administration Overheads over-absorbed	1,20,000	
Interest on investments	1,92,000	
Transfer fees	48,000	
Stores adjustment	28,000	
Dividend received	64,000	4,52,000
Less:		
Factory Overheads under-absorbed	80,000	
Depreciation under charged	1,00,000	
Income-tax provided	1,08,000	
Interest on loan funds	4,90,000	(7,78,000)
Net profit as per Financial accounts		6,94,000

- (d) (i) **Reorder Quantity (ROQ)** = 1,691 kg. (Refer to working note)
- (ii) **Reorder level (ROL)** = Maximum usage × Maximum re-order period
= 900 kg. × 8 weeks = 7,200 kg.
- (iii) **Maximum level** = ROL + ROQ – (Min. usage × Min. re-order period)
= 7,200 kg. + 1,691 kg. – (200 kg. × 4 weeks)
= 8,091 kg.
- (iv) **Minimum level** = ROL – (Normal usage × Normal re-order period)
= 7,200 kg. – (550 kg. × 6 weeks)
= 3,900 kg.
- (v) **Average stock level** = $\frac{1}{2}$ (Maximum level + Minimum level)

$$= \frac{1}{2} (8,091 \text{ kg.} + 3,900 \text{ kg.}) = 5,995.5 \text{ kg.}$$

OR

$$= \text{Minimum level} + \frac{1}{2} \text{ ROQ}$$

$$= 3,900 \text{ kg.} + \frac{1}{2} \times 1,691 \text{ kg.} = 4,745.5 \text{ kg.}$$

Working Note

Annual consumption of raw material (A) = (550 kg. × 52 weeks) = 28,600 kg.

Cost of placing an order (O) = ₹ 200

Carrying cost per kg. Per annum (c × i) = ₹ 20 × 20% = ₹ 4

$$\text{Economic order quantity (EOQ)} = \sqrt{\frac{2AO}{C \times i}}$$

$$= \sqrt{\frac{2 \times 28,600 \text{ kgs.} \times ₹ 200}{₹ 4}} = 1,691 \text{ Kg. (Approx)}$$

2. (a) (i) Production Budget of 'X' for the first Quarter

Particulars	Bags (Nos.)
Budgeted Sales	50,000
Add: Desired Closing stock	11,000
Total Requirements	61,000
Less: Opening stock	15,000
Required Production	46,000

(ii) Raw-Materials Purchase Budget in Quantity as well as in ₹ for 46,000 Bags of 'X'

Particulars	'Y' Kgs.	'Z' Kgs.	Empty Bags Nos.
Production Requirements Per bag of 'X'	2.5	7.5	1.0
Requirement for Production	1,15,000 (46,000 × 2.5)	3,45,000 (46,000 × 7.5)	46,000 (46,000 × 1)
Add: Desired Closing Stock	26,000	47,000	28,000
Total Requirements	1,41,000	3,92,000	74,000
Less: Opening Stock	32,000	57,000	37,000
Quantity to be purchased	1,09,000	3,35,000	37,000
Cost per Kg./Bag	₹ 120	₹ 20	₹ 80
Cost of Purchase (₹)	1,30,80,000	67,00,000	29,60,000

(iii) Computation of Budgeted Variable Cost of Production of 1 Bag of 'X'

Particulars	(₹)
Raw – Material	
Y 2.5 Kg @120	300.00
Z 7.5 Kg. @20	150.00
Empty Bag	80.00
Direct Labour(₹50× 9 minutes / 60 minutes)	7.50
Variable Manufacturing Overheads	45.00
Variable Cost of Production <i>per bag</i>	582.50

(iv) Budgeted Net Income for the first Quarter

Particulars	Per Bag (₹)	Total (₹)
Sales Value (50,000 Bags)	900.00	4,50,00,000
Less: Variable Cost:		
Production Cost	582.50	2,91,25,000
Admn. & Selling Expenses (5% of Sales Price)	45.00	22,50,000
Budgeted Contribution	272.50	1,36,25,000
Less: Fixed Expenses:		
Manufacturing		30,00,000
Admn. & Selling		20,50,000
Budgeted Net Income		85,75,000

(b) Statement of Cost of K Ltd. for the year ended 31st March, 2023:

Sl. No.	Particulars	Amount (₹)	Amount (₹)
(i)	Material Consumed:		
	- Raw materials purchased	10,00,00,000	
	- Freight inward	11,20,600	
	Add: Opening stock of raw materials	18,00,000	
	Less: Closing stock of raw materials	(9,60,000)	10,19,60,600
(ii)	Direct employee (labour) cost:		
	- Wages paid to factory workers		29,20,000
(iii)	Direct expenses:		
	- Royalty paid for production	1,72,600	
	- Amount paid for power & fuel	4,62,000	
	- Job charges paid to job workers	8,12,000	14,46,600
	Prime Cost		10,63,27,200
(iv)	Works/ Factory overheads:		
	- Stores and spares consumed	1,12,000	

	- Repairs & Maintenance paid for plant & machinery	48,000	
	- Insurance premium paid for plant & machinery	31,200	
	- Insurance premium paid for factory building	18,100	
	- Expenses paid for pollution control and engineering & maintenance	26,600	2,35,900
	Gross factory cost		10,65,63,100
	Add: Opening value of W-I-P		9,20,000
	Less: Closing value of W-I-P		(8,70,000)
	Factory Cost		10,66,13,100
(v)	Quality control cost:		
	- Expenses paid for quality control check activities		19,600
(vi)	Research & development cost paid improvement in production process		18,200
(vii)	Less: Realisable value on sale of scrap and waste		(86,000)
(viii)	Add: Primary packing cost		96,000
	Cost of Production		10,66,60,900
	Add: Opening stock of finished goods		11,00,000
	Less: Closing stock of finished goods		(18,20,000)
	Cost of Goods Sold		10,59,40,900
(ix)	Administrative overheads:		
	- Depreciation on office building	56,000	
	- Salary paid to General Manager	12,56,000	
	- Fee paid to independent directors	2,20,000	15,32,000
(x)	Selling overheads:		
	- Repairs & Maintenance paid for sales office building	18,000	
	- Salary paid to Manager- Sales & Marketing	10,12,000	
	- Performance bonus paid to sales staffs	1,80,000	12,10,000
(xi)	Distribution overheads:		
	- Packing cost paid for re-distribution of finished goods		1,12,000
	Cost of Sales		10,87,94,900

3. (a) (1) (i) Calculation of cost driver rate:

Cost pool	Budgeted overheads (₹)	Cost driver	Cost driver rate (₹)
Material procurement	18,42,000	1,200	1,535.00
Material handling	8,50,000	1,240	685.48

Maintenance	24,56,000	17,550	139.94
Set-up	9,12,000	1,450	628.97
Quality control	4,42,000	1,820	242.86

(ii) Calculation of cost for the batch:

Particulars	Amount (₹)	Amount (₹)
Material cost		24,62,000.00
Wages		4,68,500.00
Overheads:		
- Material procurement (₹1,535×56 orders)	85,960.00	
- Material handling (₹685.48×84 movements)	57,580.32	
- Maintenance (₹139.94×1,420 hours)	1,98,714.80	
- Set-up (₹628.97×60 set-ups)	37,738.20	
- Quality control (₹242.86×18 inspections)	4,371.48	3,84,364.80
Total Cost		33,14,864.80
No. of units		7,600
Cost per units		436.17

(2) Break- even point (in units) is 50% of sales i.e. 24,000 units.

Hence, Break- even point (in sales value) is 24,000 units × ₹ 400 = ₹ 96,00,000

(i) Break even sales = $\frac{\text{Fixed Cost}}{\text{P / V ratio}}$

Or, ₹ 96,00,000 = $\frac{\text{Fixed Cost}}{25\%}$

Or, Fixed Cost = ₹ 96,00,000 × 25%
= ₹ 24,00,000

So Fixed Cost for the year is ₹ 24,00,000

(ii) Contribution for the year = (48,000 units × ₹ 400) × 25%
= ₹ 48,00,000

Profit for the year = Contribution – Fixed Cost
= ₹ 48,00,000 - ₹ 24,00,000
= ₹ 24,00,000

(iii) Target net profit is ₹ 22,00,000

Hence, Target contribution = Target Profit + Fixed Cost
= ₹ 22,00,000 + ₹ 24,00,000
= ₹ 46,00,000

Contribution per unit = 25% of ₹ 400 = ₹ 100 per unit

No. of units = $\frac{\text{₹ 46,00,000}}{\text{₹ 100 per unit}} = 46,000 \text{ units}$

So, 46,000 units to be sold to earn a target net profit of ₹ 22,00,000 for a year.

- (iv) Let desired total Sales (Number of units × Selling price) be x then desired profit is 25% on Cost or 20% on Sales i.e. $0.2x$

$$\begin{aligned} \text{Desired Sales} &= \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{P/V ratio}} \\ x &= \frac{\text{₹}24,00,000 + 0.2x}{25\%} \end{aligned}$$

$$\text{or, } 0.25x = \text{₹}24,00,000 + 0.2x$$

$$\text{or, } 0.05x = \text{₹}24,00,000$$

$$\text{or, } x = \text{₹}4,80,00,000$$

$$\text{No. of units to be sold} = \frac{\text{₹}4,80,00,000}{\text{₹}400} = 1,20,000 \text{ units}$$

- (b) (i) (a) **Statement of Joint Cost allocation of inventories of X, Y and Z**
(By using Net Realisable Value Method)

	Products			Total
	X	Y	Z	
	(₹)	(₹)	(₹)	(₹)
Final sales value of total production (Working Note 1)	10,98,000 (366 × ₹3,000)	13,20,750 (587 × ₹2,250)	11,41,500 (761 × ₹1,500)	35,60,250
Less: Additional cost	--	--	(6,20,000)	(6,20,000)
Net realisable value (at split-off point)	10,98,000	13,20,750	5,21,500	29,40,250
Joint cost allocated (Working Note 2)	4,66,797	5,61,496	2,21,707	12,50,000

Cost of goods sold as on March 31, 2023
(By using Net Realisable Value Method)

	Products			Total
	X	Y	Z	
	(₹)	(₹)	(₹)	(₹)
Allocated joint cost	4,66,797	5,61,496	2,21,707	12,50,000
Additional costs	--	--	6,20,000	6,20,000
Cost of goods available for sale (CGAS)	4,66,797	5,61,496	8,41,707	18,70,000
Less: Cost of ending inventory (Working Note 1)	2,29,571 (CGAS × 49.18%)	57,385 (CGAS × 10.22%)	27,692 (CGAS × 3.29%)	3,14,648
Cost of goods sold	2,37,226	5,04,111	8,14,015	15,55,352

Working Notes

1. Total production of three products for the year 2022-2023

Products	Quantity sold in tones	Quantity of ending inventory in tons	Total production	Ending inventory percentage (%)
(1)	(2)	(3)	(4) = [(2) + (3)]	(5) = (3)/ (4)
X	186	180	366	49.18
Y	527	60	587	10.22
Z	736	25	761	3.29

2. Joint cost apportioned to each product:

$$\frac{\text{Total Joint cost}}{\text{Total Net Realisable Value}} \times \text{Net Realisable Value of each product}$$

$$\text{Total cost of Product X} = \frac{\text{₹ } 12,50,000}{\text{₹ } 29,40,250} \times \text{₹ } 10,98,000 = \text{₹ } 4,66,797$$

$$\text{Total cost of Product Y} = \frac{\text{₹ } 12,50,000}{\text{₹ } 29,40,250} \times \text{₹ } 13,20,750 = \text{₹ } 5,61,496$$

$$\text{Total cost of Product Z} = \frac{\text{₹ } 12,50,000}{\text{₹ } 29,40,250} \times \text{₹ } 5,21,500 = \text{₹ } 2,21,707$$

4. (a) (i) Table of Primary Distribution of Overheads

Particulars	Basis of Apportionment	Total Amount	Production Department		Service Departments	
			Fabrication	Assembly	Stores	Maintenance
Overheads Allocated		27,28,000	15,52,000	7,44,000	2,36,000	1,96,000
Direct Costs	Actual	86,36,000	71,88,000	14,48,000	---	---
Other Overheads:						
Factory rent	Floor Area (48:20:5:7)	15,28,000	9,16,800	3,82,000	95,500	1,33,700
Factory building insurance	Floor Area (48:20:5:7)	1,72,000	1,03,200	43,000	10,750	15,050
Plant & Machinery insurance	Value of Plant & Machinery (66:30:3:7)	1,96,000	1,22,038	55,472	5,547	12,943
Plant & Machinery Depreciation	Value of Plant & Machinery (66:30:3:7)	2,65,000	1,65,000	75,000	7,500	17,500
Canteen Subsidy	No. of employees (60:40:19:6)	4,48,000	2,15,040	1,43,360	68,096	21,504
		1,39,73,000	1,02,62,078	28,90,832	4,23,393	3,96,697

Re-distribution of Service Departments' Expenses:

Particulars	Basis of Apportionment	Production Department		Service Departments	
		Fabrication	Assembly	Stores	Maintenance
Overheads as per Primary distribution	As per Primary distribution	1,02,62,078	28,90,832	4,23,393	3,96,697
Maintenance Department Cost	Maintenance Hours (28:23:4:-)	2,01,955	1,65,891	28,851	(3,96,697)
Stores Department	No. of Stores Requisition (18:7:-:-)	1,04,64,033	30,56,723	4,52,244	---
		3,25,616	1,26,628	(4,52,244)	---
		1,07,89,649	31,83,351	---	---

(ii) Overhead Recovery Rate

Department	Apportioned Overhead (₹) (I)	Basis of Overhead Recovery Rate (II)	Overhead Recovery Rate (₹) [(I) ÷ (II)]
Fabrication	1,07,89,649	30,00,000 Machine Hours	3.60 per Machine Hour
Assembly	31,83,351	26,00,000 Labour Hours	1.22 per Labour Hour

- (b) (i)** Material Usage Variance = Std. Price (Std. Quantity – Actual Quantity)
= ₹ 90 (18,000 kg. – 17,800 kg.)
= ₹ 18,000 (Favourable)
- (ii)** Material Price Variance = Actual Quantity (Std. Price – Actual Price)
= 17,800 kg. (₹ 90 – ₹ 92) = ₹ 35,600 (Adverse)
- (iii)** Material Cost Variance = Std. Material Cost – Actual Material Cost
= (SQ × SP) – (AQ × AP)
= (18,000 kg. × ₹ 90) – (17,800 kg. × ₹ 92)
= ₹ 16,20,000 – ₹ 16,37,600
= ₹ 17,600 (Adverse)
- (iv)** Labour Efficiency Variance = Std. Rate (Std. Hours – Actual Hours)
= ₹ 100 (1,800 units × 8 – 14,000 hrs.)
= ₹ 100 (14,400 hrs. – 14,000 hrs.)
= ₹ 40,000 (Favourable)
- (v)** Labour Rate Variance = Actual Hours (Std. Rate – Actual Rate)
= 14,000 hrs. (₹ 100 – ₹ 104)
= ₹ 56,000 (Adverse)
- (vi)** Labour Cost Variance = Std. Labour Cost – Actual Labour Cost
= (SH × SR) – (AH × AR)
= (14,400 hrs. × ₹ 100) – (14,000 hrs. × ₹ 104)

$$= ₹ 14,40,000 - ₹ 14,56,000$$

$$= ₹ 16,000 \text{ (Adverse)}$$

(vii) Variable Cost Variance = Std. Variable Cost – Actual Variable Cost

$$= (14,400 \text{ hrs.} \times ₹ 15) - ₹ 2,17,500$$

$$= ₹ 1,500 \text{ (Adverse)}$$

(viii) Fixed Overhead Cost Variance = Absorbed Fixed Overhead – Actual Fixed Overhead

$$= (1,800 \text{ units} \times ₹ 400) - ₹ 7,68,000$$

$$= ₹ 7,20,000 - ₹ 7,68,000 = ₹ 48,000 \text{ (Adverse)}$$

5. (a) Workings:

- Normal working hours in a month = (Daily working hours – lunch break) × no. of days
= (8 hours – 0.5 hours) × 26 days = 195 hours
- Hours worked by Mr.Z = No. of normal days worked + Overtime + holiday/ Sunday worked
= (21 days × 7.5 hours) + (9.5 hours + 8.5 hours) + (5 hours + 6 hours)
= 157.5 hours + 18 hours + 11 hours = 186.50 hours.

(i) Calculation of earnings per day

Particulars	Amount (₹)
Basic salary (₹1,000 × 26 days)	26,000
Dearness allowance (20% of basic salary)	5,200
	31,200
House rent allowance (16% of basic salary)	4,160
Employer's contribution to Provident fund (12% × ₹31,200)	3,744
Employer's contribution to Pension fund (7% × ₹31,200)	2,184
	41,288
No. of working days in a month (days)	26
Rate per day	1,588
Transport allowance per day	50
Earnings per day	1,638

(ii) Calculation of effective wage rate per hour of Mr. Z:

Particulars	Amount (₹)
Basic salary (₹1,000 × 26 days)	26,000
Additional basic salary for Sunday & holiday (₹1,000 × 2 days)	2,000
Dearness allowance (20% of basic salary)	5,600
	33,600
House rent allowance (16% of basic salary)	4,480
Transport allowance (₹50 × 23 days)	1,150
Overtime allowance (₹160 × 2 × 2 hours)*	640
Employer's contribution to Provident fund (12% × ₹33,600)	4,032
Employer's contribution to Pension fund (7% × ₹33,600)	2,352
Total monthly wages	46,254

Hours worked by Mr.Z (hours)	186.5
Effective wage rate per hour	248

*(Daily Basic+DA) ÷ 7.5 hours

= (1,000+200) ÷ 7.5 = ₹160 per hour

(iii) Calculation of wages to be charged to Job no. HT200

= ₹248 × 100 hours = ₹24,800

(b) Working Notes:

1. Calculation of Depreciation per month:

	Particulars	CNG Car	EV Car
A	Car purchase price (₹)	9,20,000	15,20,000
B	Less: Govt. subsidy (₹)	--	(1,50,000)
C	Less: Residual value (₹)	(95,000)	(1,70,000)
D	Depreciable value of car (₹) [A-B-C]	8,25,000	12,00,000
E	Life of the car	15 years	10 years
F	Annual depreciation (₹) [D÷E]	55,000	1,20,000
G	Depreciation per month (₹) [F÷12]	4,583.33	10,000

2. Fuel/ Electricity consumption cost per month:

	Particulars	CNG Car	EV Car
A	Average distance covered in a month (KM)	1,500	1,500
B	Mileage (KM)	20	240
C	Qty. of CNG/ Full charge required [A÷B]	75 kg.	6.25
D	Electricity Consumption [C×30kwh]	-	187.5
E	Cost of CNG per kg (₹)	90	-
F	Power cost per Kwh (₹)	-	7.60
G	CNG Cost per month (₹) [C×E]	6,750	-
H	Power cost per month (₹) [D×F]	-	1,425

3. Amortised cost of Tyre replacement:

	Particulars	CNG Car	EV Car
A	Life of vehicle	15 years	10 years
B	Replacement interval	5 years	5 years
C	No. of time replacement required	2 times	1 time
D	Cost of tyres for each replacement (₹)	16,000	16,000
E	Total replacement cost (₹) [C×D]	32,000	16,000
F	Amortised cost per year (₹) [E÷A]	2,133.33	1,600
E	Cost per month (₹) [F÷12]	177.78	133.33

4. Amortised cost of Battery replacement:

	Particulars	CNG Car	EV Car
A	Life of vehicle	15 years	10 years
B	Replacement interval	8 years	8 years
C	No. of time replacement required	1 time	1 time
D	Cost of battery for each replacement (₹)	12,000	5,40,000
E	Total replacement cost (₹) [C×D]	12,000	5,40,000
F	Amortised cost per year (₹) [E÷A]	800	54,000
E	Cost per month (₹) [F÷12]	66.67	4,500

Calculation of Operating cost per month:

	Particulars	CNG Car (₹)	EV Car (₹)
A	Running cost:		
	Fuel cost/ Power consumption cost [Refer WN-2]	6,750	1,425
B	Maintenance cost:		
	Annual Maintenance cost [Annual cost ÷12]	666.67	433.33
	Annual Insurance cost [Annual cost ÷12]	633.33	1,216.67
	Amortised cost of Tyre replacement [Refer WN-3]	177.78	133.33
	Amortised cost of Battery replacement [Refer WN-4]	66.67	4,500
		1,544.45	6,283.33
C	Fixed cost:		
	Depreciation [Refer WN-1]	4,583.33	10,000
	Driver's salary	20,000	20,000
	Garage rent	4,500	4,500
	Share of Office & Administration cost	1,500	1,500
		30,583.33	36,000
D	Operating cost per month [A+B+C]	38,877.78	43,708.33

6. (a) **Controllable costs and Uncontrollable costs:** Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre.

Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs.

- (b) **Cost plus contract:** Under cost plus contract, the contract price is ascertained by adding a percentage of profit to the total cost of the work. Such types of contracts are entered into when it is not possible to estimate the contract cost with reasonable accuracy due to unstable condition of material, labour services etc.

Following are the advantages of cost plus contract:

- The contractor is assured of a fixed percentage of profit. There is no risk of incurring any loss on the contract.
- It is useful specially when the work to be done is not definitely fixed at the time of making the estimate.

- (iii) Contractee can ensure himself about the 'cost of contract' as he is empowered to examine the books and documents of the contractor to ascertain the veracity of the cost of contract.
- (c) In integrated accounting system cost and financial accounts are kept in the same set of books. Such a system will have to afford full information required for Costing as well as for Financial Accounts. In other words, information and data should be recorded in such a way so as to enable the firm to ascertain the cost (together with the necessary analysis) of each product, job, process, operation or any other identifiable activity. It also ensures the ascertainment of marginal cost, variances, abnormal losses and gains. In fact all information that management requires from a system of Costing for doing its work properly is made available. The integrated accounts give full information in such a manner so that the profit and loss account and the balance sheet can be prepared according to the requirements of law and the management maintains full control over the liabilities and assets of its business.

Since, only one set of books are kept for both cost accounting and financial accounting purpose so there is no necessity of reconciliation of cost and financial accounts.

- (d) The impact of IT in cost accounting may include the followings:
 - (i) After the introduction of ERPs, different functional activities get integrated and as a consequence a single entry into the accounting system provides custom made reports for every purpose and saves an organisation from preparing different sets of documents. Reconciliation process of results of both cost and financial accounting systems become simpler and less sophisticated.
 - (ii) A move towards paperless environment can be seen where documents like Bill of Material, Material Requisition Note, Goods Received Note, labour utilisation report etc. are no longer required to be prepared in multiple copies, the related department can get e-copy from the system.
 - (iii) Information Technology with the help of internet (including intranet and extranet) helps in resource procurement and mobilisation. For example, production department can get materials from the stores without issuing material requisition note physically. Similarly, purchase orders can be initiated to the suppliers with the help of extranet. This enables an entity to shift towards Just-in-Time (JIT) approach of inventory management and production.
 - (iv) Cost information for a cost centre or cost object is ascertained with accuracy in timely manner. Each cost centre and cost object is codified and all related costs are assigned to the cost object or cost centre. This process automates the cost accumulation and ascertainment process. The cost information can be customised as per the requirement. For example, when an entity manufacture or provide services, it can know information job-wise, batch-wise, process-wise, cost centre wise etc.
 - (v) Uniformity in preparation of report, budgets and standards can be achieved with the help of IT. ERP software plays an important role in bringing uniformity irrespective of location, currency, language and regulations.
 - (vi) Cost and revenue variance reports are generated in real time basis which enables the management to take control measures immediately.
 - (vii) IT enables an entity to monitor and analyse each process of manufacturing or service activity closely to eliminate non value added activities.

The above are examples of few areas where Cost Accounting is done with the help of IT.