

Mock Test Paper - Series II: April, 2024**Date of Paper: 16 April, 2024****Time of Paper: 10 A.M. to 1 P.M.****INTERMEDIATE: GROUP – II****PAPER – 4: 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.

Working notes should form part of the answer.

Time Allowed – 3 Hours**Maximum Marks – 100**

1. *The question paper comprises two parts, Part I and Part II.*
2. *Part I comprises Case Scenario based Multiple Choice Questions (MCQs) for 30 marks*
3. *Part II comprises questions which require descriptive type answers for 70 marks.*

PART I – Case Scenario based MCQs**Part I is compulsory.**

Write the most appropriate answer to each of the following multiple-choice questions by choosing one of the four options given. All questions are compulsory.

1. A meeting of the heads of departments of the Arnav Ltd. has been called to review the operating performance of the company in the last financial year. The head of the production department appraised that during the last year the company could operate at 70% capacity level but in the coming financial year 95% capacity level can be achieved if an additional amount of ₹100 Crore on capex and working capital is incurred.

The head of the finance department has presented that during the last financial year the company had a P/V ratio of 40%, margin of safety and the break-even were ₹50 crore and ₹200 crore respectively.

To the reply to the proposal of increasing the production capacity level to 95%, the head of the finance department has informed that this could be achieved if the selling price and variable cost are reduced by 8% and 5% of sales respectively. Fixed cost will also increase by ₹20 crore due to increased depreciation on additional assets. The additional capital will be arranged at a cost of 15% p.a. from a bank.

In the coming financial year, it has been aimed to achieve an additional profit of ₹10 crore over and above the last year's profit after adjusting the interest cost on the additional capital.

The following points is required to be calculated on urgent basis to put the same in the meeting. You being an assistant to the head of finance, has been asked the followings:

- i. What will be the revised sales for the coming financial year?
 - A. ₹ 322.22 Crore
 - B. ₹ 311.11 Crore
 - C. ₹ 300.00 Crore
 - D. ₹ 324.24 Crore
- ii. What will be the revised break-even point for the coming financial year?
 - A. ₹ 222.22 Crore
 - B. ₹ 252.22 Crore
 - C. ₹ 244.44 Crore
 - D. ₹ 255.56 Crore
- iii. What will be the revised margin of safety for the coming financial year?
 - A. ₹ 100 Crore
 - B. ₹ 58.89 Crore
 - C. ₹ 55.56 Crore
 - D. ₹ 66.66 Crore
- iv. The profit of the last year and for the coming year are:
 - A. ₹ 50 Crore & ₹95 Crore respectively
 - B. ₹ 20 Crore & ₹ 65 Crore respectively
 - C. ₹ 20 Crore & ₹ 30 Crore respectively
 - D. ₹ 45 Crore & ₹ 66.66 Crore respectively
- v. The total cost of the last year and for the coming year are:
 - A. ₹ 230 Crore & ₹292.22
 - B. ₹ 230 Crore & ₹275 Crore
 - C. ₹ 220 Crore & ₹282.22 Crore
 - D. ₹ 220 Crore & ₹292.22 Crore

(5 x 2 = 10 Marks)

2. K Ltd. is a manufacturer of a single product A. 8,000 units of the product A has been produced in the month of March 2024. At the beginning of the year a total 1,20,000 units of the product-A has been planned for production. The cost department has provided the following estimates of overheads:

Fixed	₹ 12,00,000	Variable	₹ 6,00,000
Semi-Variable	₹ 1,80,000		

Semi-variable charges are considered to include 60 per cent expenses of fixed nature and 40 per cent of variable character.

The records of the production department shows that the company could have operated for 20 days but there was a festival holiday during the month.

The actual cost data for the month of March 2024 are as follows:

Fixed	₹ 1,19,000	Variable	₹ 48,000
Semi-Variable	₹ 19,200		

The cost department of the company is now preparing a cost variance report for managerial information and action. You being an accounts officer of the company are asked to calculate the following information for preparation of the variance report:

- i. What is the amount of variable overhead cost variance for the month of March 2024:
 - A. ₹ 10,200 (A)
 - B. ₹ 10,400 (A)
 - C. ₹ 10,800 (A)
 - D. ₹ 10,880 (A)
- ii. What is the amount of fixed overhead volume variance for the month of March 2024:
 - A. ₹ 9,000 (F)
 - B. ₹ 9,000 (A)
 - C. ₹ 21,800 (A)
 - D. ₹ 11,000 (A)
- iii. What is the amount of fixed overhead expenditure variance for the month of March 2024:
 - A. ₹ 21,520 (A)
 - B. ₹ 21,500 (A)
 - C. ₹ 21,400 (A)
 - D. ₹ 21,480 (A)
- iv. What is the amount of fixed overhead calendar variance for the month of March 2024:
 - A. ₹ 5,400 (A)
 - B. ₹ 5,450 (A)
 - C. ₹ 5,480 (A)
 - D. ₹ 5,420 (A)
- v. What is the amount of fixed overhead cost variance for the month of March 2024:
 - A. ₹ 43,320 (A)
 - B. ₹ 43,300 (A)

C. ₹ 43,200 (A)

D. ₹ 43,380 (A)

(5 x 2 = 10 Marks)

3. If the amount of wages under Halsey plan is ₹ 420, total time allowed is 8 hours and the guaranteed time rate is ₹ 60 per hour. What is the total time saved by the worker?

A. 2 hours

B. 3 hours

C. 6 hours

D. 3.5 hours

(2 Marks)

4. From the following information, calculate the Total cost of Product A and B using the ABC analysis:

	Product A	Product B
Units	5,000	5,000
Number of purchase orders placed	100	220
Number of deliveries received	70	200
Ordering Cost	₹ 4,00,000	
Delivery Cost	₹ 1,35,000	

A. A = ₹ 47,500; B = ₹ 1,27,500

B. A = ₹ 2,67,500; B = ₹ 2,67,500

C. A = ₹ 1,60,00; B = ₹ 3,75,000

D. A = ₹ 1,47,500; B = ₹ 1,47,500

(2 Marks)

5. What would be Prime cost from below information?

Direct materials Purchased	:	₹ 75,000
Direct labour	:	₹ 45,000
Direct expenses	:	₹ 15,000
Manufacturing overheads	:	₹ 22,500
Direct materials consumed	:	₹ 67,500

A. ₹ 1,35,000

B. ₹ 1,27,500

C. ₹ 1,57,500

D. ₹ 1,50,000

(2 Marks)

6. A product passes through Process-I. Input raw material issued were 8,000 units. Normal loss anticipated was 10% of input with realisable value of ₹ 5 per unit. 7,600 units of output were produced and transferred to next process. If the total cost incurred under Process-I was ₹ 40,000, then amount of abnormal gain/(loss) is:

- A. ₹ 2,000
 B. (₹ 5,000)
 C. (₹ 2,500)
 D. ₹ 3,000

(2 Marks)

7. Find out the most appropriate unit cost from the following information of ZMD Transport Services Ltd. dealing in goods carriage:

Total cost	= ₹ 5,25,000
Kms. Travelled	= 8,75,000
Tonnes carries	= 4,000
No. of Drivers	= 25
No. of trucks	= 20
Tonnes Km carried	= 6,55,000

- A. ₹ 0.6
 B. ₹ 0.8
 C. ₹ 21,000
 D. ₹ 131.25

(2 Marks)

PART-II – Descriptive Questions (70 Marks)

Question No. 1 is compulsory.

*Attempt any **four** questions out of the remaining **five** questions.*

1. (a) The product of a manufacturing concern passes through two processes A and B and then to finished stock. The details of expenses incurred on the two processes during the year were as under:

	Process A (₹)	Process B (₹)
Materials	40,000	--
Labour	40,000	56,000
Overheads	16,000	40,000

On completion, the output of Process A is transferred to Process B at a price calculated to give a profit of 20% on the transfer price and the output of Process B is charged to finished stock at a profit of 25% on the transfer price. The finished stock department realized ₹ 4,00,000 for the finished goods received from Process B.

You are asked to SHOW process accounts and total profit, assuming that there was no opening or closing work-in-progress.

(5 Marks)

- (b) DSM Ltd manufactures speed boats which require propeller TP-M4. The following particulars are collected for the year 2023-24:

- (i) Annual demand of TP-M4 12,000 units
- (ii) Cost of placing an order ₹1,200 per order
- (iii) Cost per unit of TP-M4 is ₹1,740/-
- (iv) Carrying cost p.a. 12%

The company has been offered a quantity discount of 5 % on the purchase of TP-M4, provided the order size is 6,000 units at a time.

Required to:

- (i) COMPUTE the economic order quantity (EOQ)
- (ii) ADVISE whether the quantity discount offer can be accepted.

(5 Marks)

- (c) A skilled worker in Shanu Ltd. is paid a guaranteed wage rate of ₹ 30 per hour. The standard time per unit for a particular product is 4 hours. Sam, 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.

WHAT could have been his total earnings and effective hourly rate, had he been put on Halsey Incentive Scheme (50%)? **(4 Marks)**

2. (a) The following information are available for the three machines of a manufacturing department of KBC Ltd.:

	Preliminary estimates of expenses			
	Total	(per annum)		
		Machines		
		P	Q	R
	(₹)	(₹)	(₹)	(₹)
Depreciation	20,000	7,500	7,500	5,000
Spare parts	10,000	4,000	4,000	2,000
Power	40,000			
Consumable stores	10,000	4,000	3,000	3,000
Insurance of machinery	8,000			
Indirect labour	20,000			
Building maintenance expenses	20,000			
Annual interest on capital outlay	60,000	25,000	25,000	10,000
Monthly charge for rent and rates	10,000			
Salary of foreman (per month)	20,000			
Salary of Attendant (per month)	5,000			

(The foreman and the attendant control all the three machines and spend equal time on them.)

The following additional information is also available:

	Machines		
	P	Q	R
Estimated Direct Labour Hours	1,00,000	1,50,000	1,50,000
Ratio of K.W. Rating	3	2	3
Floor space (sq. ft.)	40,000	40,000	20,000

There are 14 holidays besides Sundays in the year, of which two were on Saturdays. The manufacturing department works 8 hours in a day but Saturdays are half days. All machines work at 85% capacity throughout the year and 2% is reasonable for breakdown.

You are required to :

CALCULATE predetermined machine hour rates for the above machines after taking into consideration the following factors:

- An increase of 15% in the price of spare parts.
- An increase of 25% in the consumption of spare parts for machine 'Q' & 'R' only.
- 20% general increase in wages rates.
- An 10% decrease in the consumption of consumable stores.

(10 Marks)

- (b) Happi Ltd. Produces product RP in batches, management of the Happi Ltd. wants to know the number of batches of product RP to be produced where the cost incurred on batch setup and carrying cost of production is at optimum level.

(4 Marks)

3. (a) Aman International School has a total of 180 students consisting of 6 sections with 30 students per section. The school plans for a picnic around the city during the week-end to places such as Prayag zoo, the Capi Park, Azad planetarium etc. A private transport operator has come forward to lease out the buses for taking the students. Each bus will have a maximum capacity of 50 (excluding 2 seats reserved for the teachers accompanying the students). The school will employ two teachers for each bus, paying them an allowance of ₹ 500 per teacher. It will also lease out the required number of buses. The following are the other cost estimates:

	Cost per student (₹)
Breakfast	50
Lunch	100
Tea	10
Entrance fee at zoo	20

Rent ₹ 6500 per bus.

Special permit fee ₹ 500 per bus.

Block entrance fee at the planetarium ₹ 2500.

Prizes to students for games ₹ 500.

No cost are incurred in respect of the accompanying teachers (except the allowance of ₹ 500 per teacher).

You are required to PREPARE:

- (a) A flexible budget estimating the total cost for the levels of 60, 90, 120, 150 and 180 students. Each item of cost is to be indicated separately.
- (b) COMPARE the average cost per student at these levels.
- (c) WHAT will be your conclusions regarding the break-even level of student if the school proposes to collect ₹ 400 per student?

(10 Marks)

- (b) Anju Limited has collected the following data for its two activities. It calculates activity cost rates based on cost driver capacity.

Activity	Cost Driver	Capacity	Cost (₹)
Power	Kilowatt hours	60,000 kilowatt hours	60,00,000
Quality Inspections	Number of Inspections	10,000 Inspections	90,00,000

The company makes three products A, B and C. For the year ended March 31, 20XX, the following consumption of cost drivers was reported:

Product	Kilowatt hours	Quality Inspections
A	10,000	3,500
B	20,000	2,500
C	15,000	3,000

Required:

- (i) PREPARE a statement showing cost allocation to each product from each activity.
- (ii) CALCULATE the cost of unused capacity for each activity.

(4 Marks)

4. (a) The following are the budgeted details are available from the records of a manufacturing company SP Ltd.:

	₹	₹
Direct Materials		2,13,000
Direct Wages:		

Machine Shop (12,000 hours)	63,000	
Assembly Shop (10,000 hours)	48,000	1,11,000
Works Overhead:		
Machine Shop	88,200	
Assembly Shop	51,800	1,40,000
Administrative Overhead		92,800
Selling Overhead		81,000
Distribution Overhead		62,100

You are required to:

- PREPARE a Schedule of Overhead Rates from the figures available stating the basis of overhead recovery rates used under the given circumstances.
- WORK OUT a Cost Estimate for the following job based on overhead calculated on above basis.

Direct Material:	25 kg @ ₹ 17.20/kg
	15 kg @ ₹ 21.00/kg
Direct labour: (On the basis of hourly rate)	Machine shop 30 hours
For machine shop and assembly shop)	Assembly shop 42 hours

(8 Marks)

- HOW is slow moving and non-moving item of stores detected and WHAT steps are necessary to reduce such stocks? **(4 Marks)**
 - WHEN is the reconciliation statement of Cost and Financial accounts not required? **(2 Marks)**
5. (a) Following information relate to a manufacturing concern for the year ended 31st March, 2023:

	(₹)
Raw Material (opening)	2,28,000
Raw Material (closing)	3,05,000
Purchases of Raw Material	43,50,000
Freight Inwards	1,20,000
Direct wages paid	12,56,000
Direct wages-outstanding at the end of the year	1,50,000
Factory Overheads	20% of prime cost
Work-in-progress (opening)	1,92,500
Work-in-progress (closing)	1,40,700

Administrative Overheads (related to production)	1,73,000
Distribution Expenses	₹ 16 per unit
Finished Stock (opening)- 1,320 Units	6,08,500
Sale of scrap of material	7,000

The firm produced 14,350 units of output during the year. The stock of finished goods at the end of the year is valued at cost of production. The firm sold 14,903 units at a price of ₹579 per unit during the year.

PREPARE cost sheet of the firm.

(8 Marks)

- (b) A hotel having 20 single rooms is having 80% occupancy in normal season (8 months) and 50% in off- season (4 months) in a year (take 30 days month).

Annual fixed expenses	Amount in ₹
Salary of the staff (excluding room attendant)	15,00,000
Repair & maintenance	12,60,000
Depreciation on building & furniture	12,40,000
Other fixed expenses like dusting, sweeping etc.	13,25,000
	53,25,000
Variable expenses (per guest per day)	
Linen, laundry & security support	80.00
Electricity & other facilities	120.00
Misc. expenses like attendant etc.	300.00
	500.00

Management wishes to make a margin of 25% of total cost.

Required

- (a) CALCULATE the Tariff per room per day.
 (b) CALCULATE the break-even occupancy in normal season (in percentage also) assuming there is 50% occupancy in off-season.

(6 Marks)

6. (a) Why is it necessary to reconcile the Profits between the Cost Accounts and Financial Accounts? **(5 Marks)**

- (b) DISCUSS the essential features of a good cost accounting system?

(5 Marks)

- (c) ENUMERATE the remedial steps to be taken to minimize the labour turnover **(4 Marks)**

OR

- (c) DISCUSS basic assumptions of Cost Volume Profit analysis. **(4 Marks)**

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Date of Paper: 16 April, 2024

Time of Paper: 10 A.M. to 1 P.M.

INTERMEDIATE: GROUP – II
PAPER – 4: COST AND MANAGEMENT ACCOUNTING
Suggested Answers/ Solution
PART I – Case Scenario based MCQs

1. i. **A** Revised Sale = $\frac{\text{Revised Fixed Cost} + \text{Expected Profit}}{\text{P / V Ratio}}$
 $= \{₹115 + (20+10)\} \div 45\% = ₹ 322.22 \text{ crores}$
- ii. **D** Revised Break – even Point = $\frac{\text{Fixed Cost}}{\text{P / V Ratio}}$
 $= ₹115 \text{ Crore} \div 45\% = ₹255.56 \text{ Crore (Refer working notes)}$
- iii. **D** Revised Margin of Safety = Revised Sales – Revised Break–even Sales
 $= ₹ 322.22 \text{ Crores} - ₹ 255.56 \text{ Crores} = ₹ 66.66 \text{ Crores.}$
- iv. **C** ₹ 20 Crore & ₹30 Crore respectively (Refer working note)
- v. **A** Total cost in last year = ₹230 Crore
Total cost in coming year = Variable Cost + Fixed Cost
Revised sales \times 55% + 115 Crore
 $= ₹ 322.22 \text{ Crore} \times 55\% + ₹ 115 \text{ Crore} = ₹ 292.22 \text{ Crore}$

Working Note

Present Sales and Profit

$$\begin{aligned}\text{Total Sales} &= \text{Break – even Sales} + \text{Margin of Safety} \\ &= ₹ 200 \text{ Crores} + ₹ 50 \text{ Crores} \\ &= ₹ 250 \text{ Crores} \\ \text{P/V Ratio} &= 40\% \\ \text{Variable Cost} &= 60\% \text{ of Sales} \\ &= ₹ 250 \text{ Crores} \times 60\% \\ &= ₹ 150 \text{ Crores} \\ \text{Fixed Cost} &= \text{Break – even Sales} \times \text{P/V Ratio} \\ &= ₹ 200 \text{ Crores} \times 40\% \\ &= ₹ 80 \text{ Crores}\end{aligned}$$

$$\begin{aligned}\text{Total Cost} &= ₹ 150 \text{ Crores} + ₹ 80 \text{ Crores} \\ &= ₹ 230 \text{ Crores} \\ \text{Profit} &= \text{Total Sales} - \text{Total Cost} \\ &= ₹ 250 \text{ Crores} - ₹ 230 \text{ Crores} \\ &= ₹ 20 \text{ Cores}\end{aligned}$$

Revised Sales (₹ in Crores)

Present Fixed Cost	80.00
Increase in Fixed Cost	20.00
Interest at 15 <i>per cent</i> on Additional Capital (₹100Crores × 15%)	15.00
Total Revised Fixed Cost (in crore)	115.00
Assuming that the Present Selling Price is ₹100	
Revised Selling Price will be (8% Less)	92.00
New Variable Cost (Reduced from 60% to 55%) of Sales (₹ 92 × 55%)	50.60
Contribution (₹92.00 – ₹ 50.60)	41.40

$$\begin{aligned}\text{New P / V Ratio} &= \frac{₹ 41.40}{₹ 92.00} \times 100 \\ &= 45\%\end{aligned}$$

2. i. **D Variable Overhead Cost** = Standard Variable Overheads for
Production – Actual
Variance Variable Overheads
= ₹ 44,800 – ₹ 55,680
= ₹ 10,880 (A)
- ii. **C Fixed Overhead Volume** = Absorbed Fixed Overheads –
Budgeted Fixed Overheads
Variance
= ₹ 87,200 – ₹ 1,09,000
= ₹ 21,800 (A)
- iii. **A Fixed Overhead Expenditure** = Budgeted Fixed Overheads –
Actual Fixed Overheads
Variance
= ₹ 10.9 × 10,000 units – ₹ 1,30,520
= ₹ 21,520 (A)
- iv. **B Calendar Variance** = Possible Fixed Overheads – Budgeted
Fixed Overheads
= ₹ 1,03,550 – ₹ 1,09,000

$$= ₹ 5,450 \text{ (A)}$$

v. A Fixed Overhead Cost Variance = Absorbed Fixed Overheads – Actual Fixed Overheads

$$= ₹ 87,200 - ₹ 1,30,520$$

$$= ₹ 43,320 \text{ (A)}$$

WORKING NOTE

Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ = $12,00,000 \div 1,20,000$	₹ 10.00
Fixed Overheads element in <i>Semi-Variable</i> Overheads i.e. 60% of ₹ 1,80,000	₹ 1,08,000
Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ ₹ 1,08,000/120,000	₹ 0.90
Standard Rate of Absorption of Fixed Overheads <i>per unit</i> (₹ 10.00 + ₹ 0.90)	₹ 10.90
Fixed Overheads Absorbed on 8,000 units @ ₹10.90	₹ 87,200
Budgeted Variable Overheads Add: Variable element in Semi-Variable Overheads 40% of ₹ 1,80,000	₹ 6,00,000 <u>₹ 72,000</u>
Total Budgeted Variable Overheads	₹ 6,72,000
Standard Variable Cost <i>per unit</i> = $\frac{\text{Budgeted Variable Overheads}}{\text{Budgeted Output}}$	₹5.60
Standard Variable Overheads for 8,000 units @ ₹5.60	₹ 44,800
Budgeted Annual Fixed Overheads (₹ 12,00,000 + 60% of ₹ 1,80,000)	₹ 13,08,000
Possible Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Days}} \times \text{Actual Days}$ = $1,09,000/20 \text{ days} \times 19 \text{ days}$	₹ 1,03,550
Actual Fixed Overheads (₹ 1,19,000 + 60% of ₹ 19,200)	₹ 1,30,520
Actual Variable Overheads (₹ 48,000 + 40% of ₹ 19,200)	₹ 55,680

3. **A** $(TT \times 60) + [0.50 \times (8 - TT) \times 60] = 420$ $TT^* = 6$ hours

Time saved = $8 - 6 = 2$

* TT=Total Time Taken

4. **C** Ordering Cost = $4,00,000/320 = 1,250$

Delivery Cost = $1,35,000/270 = 500$

$$A = 1,250 \times 100 + 500 \times 70 = 1,60,000$$

$$B = 1,250 \times 220 + 500 \times 200 = 3,75,000$$

5. **B** Direct labour : ₹ 45,000
Direct expenses : ₹ 15,000
Direct materials consumed : ₹ 67,500
Prime Cost ₹ 1,27,500
6. **A** Abnormal gain units = $7600 - [8000 - 800] = 400$ Abnormal gain
= $[40,000 - (800 \times 5)] / 7200 \text{ units} \times 400 \text{ units} = 2,000$
7. **B** Total cost = ₹ 5,25,000
Tonnes Km carried = 6,55,000
Unit Cost = ₹ 525000/655000 Km = ₹ 0.801

PART-II– Descriptive Questions

1. (a) Process A Account

Dr		Cr.	
	₹		₹
To Materials	40,000	By Transfer to Process B A/c	1,20,000
To Labour	40,000		
To Overheads	16,000		
	96,000		
To Profit (20% of transfer price, i.e., 25% of cost)	24,000		
	1,20,000		1,20,000

Process B Account

Dr		Cr.	
	₹		₹
To Transferred from Process A A/c	1,20,000	By Transfer to Finished Stock A/c	2,88,000
To Labour	56,000		
To Overhead	40,000		
	2,16,000		
To Profit (25% of transfer price i.e., 33.33% of cost)	72,000		
	2,88,000		2,88,000

Statement of Total Profit

	₹
Profit from Process A	24,000
Profit from Process B	72,000
Profit on Sales (₹ 4,00,000 – ₹ 2,88,000)	1,12,000
Total Profit	2,08,000

(b) (i) Calculation of Economic Order Quantity

$$\begin{aligned}
 \text{EOQ} &= \sqrt{\frac{2 \times \text{Annual Demand} \times \text{Ordering Cost}}{\text{Carrying cost per unit per annum}}} \\
 &= \sqrt{\frac{2 \times 12,000 \text{ units} \times ₹1,200}{₹1,740 \times 0.12}} = 371 \text{ units (Approx)}
 \end{aligned}$$

(ii) Evaluation of Profitability of Different Options of Order Quantity

(a) When EOQ is ordered

		(₹)
Purchase Cost	(12,000 units × ₹ 1,740)	2,08,80,000.00
Ordering Cost*	[(12,000 units ÷ 371 units) i.e. 33 × ₹ 1,200]	39,600.00
Carrying Cost**	(371 units × ₹ 1,740 × ½ × 12/100)	38,732.40
Total Cost		2,09,58,332.40

(b) When Quantity Discount of 5% is offered.

		(₹)
Purchase Cost	(12,000 units × ₹ 1,740 × 0.95)	1,98,36,000.00
Ordering Cost*	[(12,000 units ÷ 6,000 units) × ₹1,200]	2,400.00
Carrying Cost**	(6,000 units × ₹1,653 × ½ × 12/100)	5,95,080.00
Total Cost		2,04,33,480.00

Advise – The total cost of inventory is lower if quantity discount offer is accepted. Hence, the company is advised to accept the quantity discount.

$$* \text{ Ordering Cost} = \frac{\text{Annual Demand}}{\text{Order Quantity}} \times \text{Cost of placing an order}$$

$$** \text{ Carrying Cost} = \frac{\text{Cost per unit} \times \text{Quantity ordered} \times \text{Carrying Cost}}{2}$$

- (c) Let T hours be the total time worked in hours by the skilled worker (machine-man Sam); ₹ 30/- is the rate per hour; standard time is 4 hours per unit and effective hourly earning rate is ₹ 37.50 then

Earning = Hours worked × Rate per hour

$$+ \frac{\text{Time saved}}{\text{Time allowed}} \times \text{Time taken} \times \text{Rate per hour}$$

(Under Rowan incentive plan)

$$₹ 37.5 T = (T \times ₹ 30) + \frac{(4 - T)}{4} \times T \times ₹ 30$$

$$₹ 37.5 = ₹ 30 + (4 - T) \times ₹ 7.5$$

$$\text{Or } ₹ 7.5 T = ₹ 22.5$$

Or T = 3 hours

Total earnings and effective hourly rate of skilled worker (machine man Sam) under Halsey Incentive Scheme (50%)

Total earnings = (Hours worked × Rate per hour) + ($\frac{1}{2}$ Time saved × Rate per hour)

(under 50% Halsey Incentive Scheme)

$$= (3 \text{ hours} \times ₹ 30) + (\frac{1}{2} \times 1 \text{ hour} \times ₹ 30)$$

$$\text{Effective hourly rate} = \frac{\text{Total earnings}}{\text{Hours taken}} = \frac{₹ 105}{3 \text{ hours}} = ₹ 35$$

2. (a) Computation of Machine Hour Rate

	Basis of apportionment	Total (₹)	Machines		
			P (₹)	Q (₹)	R (₹)
(A) Standing Charges					
Insurance	Depreciation Basis	8,000	3,000	3,000	2,000
Indirect Labour	Direct Labour	24,000	6,000	9,000	9,000
Building Maintenance expenses	Floor Space	20,000	8,000	8,000	4,000
Rent and Rates	Floor Space	1,20,000	48,000	48,000	24,000
Salary of foreman	Equal	2,40,000	80,000	80,000	80,000
Salary of attendant	Equal	<u>60,000</u>	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>

Total standing charges		<u>4,72,000</u>	<u>1,65,000</u>	<u>1,68,000</u>	<u>1,39,000</u>
Hourly rate for standing charges			<u>90.36</u>	<u>92.00</u>	<u>76.12</u>
(B) Machine Expenses:					
Depreciation	Direct	20,000	7,500	7,500	5,000
Spare parts	Final estimates	13,225	4,600	5,750	2,875
Power	K.W. rating	40,000	15,000	10,000	15,000
Consumable Stores	Direct	<u>9,000</u>	<u>3,600</u>	<u>2,700</u>	<u>2,700</u>
Total Machine expenses		<u>82,225</u>	<u>30,700</u>	<u>25,950</u>	<u>25,575</u>
Hourly Rate for Machine expenses			<u>16.81</u>	<u>14.21</u>	<u>14.01</u>
Total (A + B)		<u>5,54,225</u>	<u>1,95,700</u>	<u>1,93,950</u>	<u>1,64,575</u>
Machine Hour rate			<u>107.17</u>	<u>106.22</u>	<u>90.13</u>

Working Notes:

- (i) Calculation of effective working hours:

No. of holidays 52 (Sundays) + 14 (other holidays) = 66

Saturday (52 – 2) = 50

No. of days (Work full time) = 365 – 66 – 50 = 249

Hours

Full days work 249 × 8 = 1,992

Half days work 50 × 4 = 200

2,192

Hours

Effective capacity 85% of 2,192 1,863 (Rounded off)

Less: Normal loss of time (Breakdown) 2% 37 (Rounded off)

Effective running hour 1,826

- (ii) Amount of spare parts is calculated as under:

	P	Q	R
	₹	₹	₹
Preliminary estimates	4,000	4,000	2,000

Add: Increase in price @ 15%	<u>600</u>	<u>600</u>	<u>300</u>
	4,600	4,600	2,300
Add: Increase in consumption @ 25%	–	<u>1,150</u>	<u>575</u>
Estimated cost	<u>4,600</u>	<u>5,750</u>	<u>2,875</u>

(iii) Amount of Indirect Labour is calculated as under:

	₹
Preliminary estimates	20,000
Add: Increase in wages @ 20%	<u>4,000</u>
	<u>24,000</u>

(iv) Amount of Consumables Stores is calculated as under:

	₹
Preliminary estimates	10,000
Less: Decrease in consumption @ 10%	<u>1,000</u>
	<u>9,000</u>

(v) Interest on capital outlay is a financial matter and, therefore it has been excluded from the cost accounts.

- (b) Economic batch quantity in Batch Costing: In batch costing the most important problem is the determination of 'Economic Batch Quantity'. The determination of economic batch quantity involves two types of costs viz, (i) set up cost and (ii) carrying cost. With the increase in the batch size, there is an increase in the carrying cost but the set up cost per unit of product is reduced. This situation is reversed when the batch size is reduced. Thus there is one particular batch size for which both set up and carrying costs are minimum. This size of a batch is known as economic or optimum batch quantity.

Economic batch quantity can be determined with the help of table, graph or mathematical formula. The mathematical formula usually used for its determination is as follows:

$$E.B.Q = \sqrt{\frac{2DS}{C}}$$

Where, D= Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production per annum

3. (a) (a) Flexible Budget for different levels

	₹	₹	₹	₹	₹
No. of Students	<u>60</u>	<u>90</u>	<u>120</u>	<u>150</u>	<u>180</u>
VARIABLE COST					

Breakfast	3000	4500	6000	7500	9000
Lunch	6000	9000	12000	15000	18000
Tea	600	900	1200	1500	1800
Entrance fee	<u>1200</u>	<u>1800</u>	<u>2400</u>	<u>3000</u>	<u>3600</u>
Sub-total (A)	<u>10800</u>	<u>16200</u>	<u>21600</u>	<u>27000</u>	<u>32400</u>
Variable cost/unit	180	180	180	180	180
SEMI-VARIABLE COST					
Bus rent	13000	13000	19500	19500	26000
Special permit fee	1000	1000	1500	1500	2000
Allowance for teachers	<u>2000</u>	<u>2000</u>	<u>3000</u>	<u>3000</u>	<u>4000</u>
Sub-total (B)	<u>16000</u>	<u>16000</u>	<u>24000</u>	<u>24000</u>	<u>32000</u>
FIXED COST					
Block entrance fee	2500	2500	2500	2500	2500
Prize to students	<u>500</u>	<u>500</u>	<u>500</u>	<u>500</u>	<u>500</u>
Sub total (C)	<u>3000</u>	<u>3000</u>	<u>3000</u>	<u>3000</u>	<u>3000</u>
Total cost (A + B + C)	<u>29,800</u>	<u>35,200</u>	<u>48,600</u>	<u>54,000</u>	<u>67,400</u>

(b) Cost per student 496.67 391.11 405.00 360.00 374.44

(c) Break-even level ₹

Collection per students	400
Less Variable Cost	<u>180</u>
Contribution	<u>220</u>

Since semi-fixed costs relate to a block of 50 students, the fixed and semi-variable cost for three level will be:

Level of Student	51–100	101–150	151–200
Fixed + Semi-variable cost (₹)	19,000	27,000	35,000
Contribution per unit (₹)	220	220	220
Break Even level of students	86	123	159

(b) (i) **Statement of cost allocation to each product from each activity**

	Product			
	A (₹)	B (₹)	C (₹)	Total (₹)
Power (Refer to working note)	10,00,000	20,00,000	15,00,000	45,00,000

	(10,000 kWh × ₹ 100)	(20,000 kWh × ₹ 100)	(15,000 kWh × ₹ 100)	
Quality Inspections (Refer to working note)	31,50,000 (3,500 inspections × ₹ 900)	22,50,000 (2,500 inspections × ₹ 900)	27,00,000 (3,000 inspections × ₹ 900)	81,00,000

Working Note:

Rate per unit of cost driver:

Power : (₹ 60,00,000 ÷ 60,000 kWh) = ₹100/kWh

Quality Inspection: (₹ 90,00,000 ÷ 10,000 inspections) = ₹900 per inspection

(ii) Calculation of cost of unused capacity for each activity:

	(₹)
Power (₹60,00,000 – ₹45,00,000)	15,00,000
Quality Inspections (₹90,00,000 – ₹81,00,000)	9,00,000
Total cost of unused capacity	24,00,000

4. (a) Job Cost Sheet for the period.....

			₹
Direct materials			2,13,000
Direct wages:			
Machine shop		63,000	
Assembly shop		<u>48,000</u>	<u>1,11,000</u>
	Prime Cost		3,24,000
Works overhead:			
Machine shop		88,200	
Assembly shop		<u>51,800</u>	<u>1,40,000</u>
	Work Cost		4,64,000
Administration overhead			<u>92,800</u>
	Cost of Production		5,56,800
Selling overhead			81,000
Distribution overhead			<u>62,100</u>
	Total Cost		<u>6,99,900</u>

Schedule of Overhead Rate

- (i) Works Overhead: Hourly rate = (Overhead amount ÷ Hours)

Machine shop = $(88,200 \div 12,000) = ₹ 7.35$ per hour

Assembly shop = $(51,800 \div 10,000) = ₹ 5.18$ per hour

- (ii) Administrative Overhead as a % of works cost

$$= \frac{92,800}{4,64,000} \times 100 = 20\%$$

- (iii) Selling and distribution overhead as % of works cost

$$= \frac{81,000 + 62,100}{4,64,000} \times 100 = 30.84\%$$

Labour hour rates are calculated as under:

Machine shop = $₹ 63,000 \div 12,000 \text{ hrs.} = ₹ 5.25$

Assembly shop = $₹ 48,000 \div 10,000 \text{ hrs.} = ₹ 4.80$

(b) Cost Estimate for Job

Direct Materials	₹	₹
(i) 25 kg @ ₹ 17.20 per kg	430	
(ii) 15 kg @ ₹ 21 per kg	<u>315</u>	745.00
Direct Labour		
Machine shop (30 hrs. @ ₹ 5.25)	157.50	
Assembly shop (42 hrs. @ ₹ 4.80)	<u>201.60</u>	<u>359.10</u>
Prime Cost		1104.10
Works Overhead		
Machine shop (30 hours @ ₹ 7.35)	220.50	
Assembly shop (42 hours @ ₹ 5.18)	<u>217.56</u>	<u>438.06</u>
Works Cost		1542.16
Administration overhead (20% of works cost)		<u>308.43</u>
Cost of Production		1850.59
Selling and distribution cost (30.84% of works cost)		<u>475.60</u>
Total Estimated Cost		<u>2326.19</u>

(b) Detection of slow moving and non-moving item of stores:

The existence of slow moving and non-moving item of stores can be detected in the following ways.

- By preparing and *perusing periodic reports* showing the status of different items or stores.
- By calculating the *inventory turnover period* of various items in terms of number of days/ months of consumption.

- (iii) By computing *inventory turnover ratio* periodically, relating to the issues as a percentage of average stock held.
- (iv) By implementing the use of a well designed information system.

Necessary steps to reduce stock of slow moving and non-moving item of stores:

- (i) Proper procedure and guidelines should be laid down for the disposal of non-moving items, before they further deteriorates in value.
 - (ii) Diversify production to use up such materials.
 - (iii) Use these materials as substitute, in place of other materials.
- (c) When the Cost and Financial Accounts are integrated - there is no need to have a separate reconciliation statement between the two sets of accounts. Integration means that the same set of accounts fulfil the requirement of both i.e., Cost and Financial Accounts.
5. (a) **Cost sheet for the year ended 31st March, 2023.**

Units produced - 14,000 units

Units sold - 14,153 units

Particulars	Amount (₹)
Raw materials purchased	43,50,000
Add: Freight Inward	1,20,000
Add: Opening value of raw materials	2,28,000
Less: Closing value of raw materials	(3,05,000)
	43,93,000
Less: Sale of scrap of material	(7,000)
Materials consumed	43,86,000
Direct Wages (12,56,000 + 1,50,000)	14,06,000
Prime Cost	57,92,000
Factory overheads (20% of Prime Cost)	11,58,400
Add: Opening value of W-I-P	1,92,500
Less: Closing value of W-I-P	(1,40,700)
Factory Cost	70,02,200
Add: Administrative overheads	1,73,000
Cost of Production	71,75,200
Add: Value of opening finished stock	6,08,500
Less: Value of closing finished stock [₹ 500(71,75,200/14,350) × 767] (1,320 + 14,350 – 14,903 = 767 units)	(3,83,500)
Cost of Goods Sold	74,00,200
Distribution expenses (₹16 × 14,903 units)	2,38,448

Cost of Sales	76,38,648
Profit (Balancing figure)	9,90,189
Sales (₹ 579 × 14,903 units)	86,28,837

(b) Workings:

Total occupancy = Occupancy in normal season + Occupancy in off-season

= (20 rooms × 80% × 8 months × 30 days) + (20 rooms × 50% × 4 months × 30 days)

= 3,840 + 1,200 = 5,040 room-days

Total Cost = Variable cost + Fixed cost

= (₹ 500 × 5,040 room-days) + ₹ 53,25,000

= ₹ 25,20,000 + ₹ 53,25,000

= 78,45,000

(a) Calculation of tariff rate per room

Tariff per room per day = (Total cost + 25% Margin on total cost) ÷ Total occupancy

= (₹ 78,45,000 + 19,61,250) ÷ 5,040 = ₹ 1,945.68

(b) Calculation of break-even occupancy

Contribution per day = Tariff – Variable cost

= ₹ 1,945.68 – 500 = ₹ 1445.68

Break-even occupancy = ₹ 53,25,000 ÷ 1445.68

= 3683

Occupancy in normal season = Break-even occupancy – Occupancy in off-season

= 3683 – (20 rooms × 50% × 4 months × 30 days)

= 3683 – 1200 = 2483 room-days

In Percentage = 2483 ÷ 4800 = 51.73%

6. (a) When the cost and financial accounts are kept separately, It is imperative that these should be reconciled, otherwise the cost accounts would not be reliable. The reconciliation of two set of accounts can be made, if both the sets contain sufficient detail as would enable the causes of differences to be located. It is therefore, important that in the financial accounts, the expenses should be analysed in the same way as in cost accounts. It is important to know the causes which generally give rise to differences in the costs & financial accounts. These are:

(i) Items included in financial accounts but not in cost accounts

- Income-tax
- Transfer to reserve

- Dividends paid
 - Goodwill / preliminary expenses written off
 - Pure financial items
 - Interest, dividends
 - Losses on sale of investments
 - Expenses of Co's share transfer office
 - Damages & penalties
- (ii) Items included in cost accounts but not in financial accounts
- Opportunity cost of capital
 - Notional rent
- (iii) Under / Over absorption of expenses in cost accounts
- (iv) Different bases of inventory valuation

Motivation for reconciliation is:

- To ensure reliability of cost data
- To ensure ascertainment of correct product cost
- To ensure correct decision making by the management based on Cost & Financial data
- To report fruitful financial / cost data.

(b) The essential features, which a good Cost Accounting System should possess, are as follows:

- (a) Informative and Simple:** Cost Accounting System should be tailor-made, practical, simple and capable of meeting the requirements of a business concern. The system of costing should not sacrifice the utility by introducing meticulous and unnecessary details.
- (b) Accuracy:** The data to be used by the Cost Accounting System should be accurate; otherwise it may distort the output of the system and a wrong decision may be taken.
- (c) Support from Management and subordinates:** Necessary cooperation and participation of executives from various departments of the concern is essential for developing a good system of Cost Accounting.
- (d) Cost-Benefit:** The Cost of installing and operating the system should justify the results.
- (e) Procedure:** A carefully phased programme should be prepared by using network analysis for the introduction of the system.
- (f) Trust:** Management should have faith in the Costing System and should also provide a helping hand for its development and success.

- (c) The following steps are useful for minimizing labour turnover:
- (a) *Exit interview*: An interview to be arranged with each outgoing employee to ascertain the reasons of his leaving the organization.
 - (b) *Job analysis and evaluation*: to ascertain the requirement of each job.
 - (c) Organization should make use of a scientific system of recruitment, placement and promotion for employees.
 - (d) Organization should create healthy atmosphere, providing education, medical and housing facilities for workers.
 - (e) Committee for settling workers grievances.

OR

- (c) CVP Analysis:-Assumptions
- (i) Changes in the levels of revenues and costs arise only because of changes in the number of products (or service) units produced and sold.
 - (ii) Total cost can be separated into two components: Fixed and variable
 - (iii) Graphically, the behaviour of total revenues and total cost are linear in relation to output level within a relevant range.
 - (iv) Selling price, variable cost per unit and total fixed costs are known and constant.
 - (v) All revenues and costs can be added, sub traded and compared without taking into account the time value of money.