INTERMEDIATE COURSE

PAPER – 4

COST AND MANAGEMENT ACCOUNTING

[RELEVANT FOR MAY, 2026 EXAMINATION AND ONWARDS]

BOOKLET ON CASE SCENARIOS

BOARD OF STUDIES (ACADEMIC)

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF INDIA

This booklet has been prepared by the faculty of the Board of Studies (Academic). The objective of the booklet is to provide teaching material to the students to enable them to obtain knowledge in the subject. In case students need any clarifications or have any suggestions to make for further improvement of the material contained herein, they may write to the Joint Director, Board of Studies (Academic).

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BEFORE WE BEGIN.....

Under the New Scheme of Education and Training which was introduced on 1st July, 2023, 30% of the examination assessment is by the way of Objective Type Questions at Intermediate and Final level. Therefore, to provide hands-on practice for such type of questions, BOS launched MCQ Paper Practice Portal on 1st July, 2023. This online portal contains independent MCQs as well as case scenario based MCQs both for conceptual clarity and practice of the students.

In continuation to this handholding initiative and to provide quality academic inputs to the students to help them grasp the intricate aspects of the subject, the Board of studies has brought forth subject-wise booklets on Case Scenarios at Intermediate and Final level. These booklets are meticulously designed to assist Chartered Accountancy (CA) students in their preparation of the CA course.

The **'Booklet on Case Scenarios for Paper 4: Cost and Management Accounting'** will serve as revision help book towards preparing for Intermediate examination of the Institute and help the students in identifying the gaps in the preparation of the examination and developing plan to make it up. The case scenario-based MCQs are all application oriented MCQs and arise from the facts of the case. At the end of each case scenario followed by MCQs, we have also provided explanations/hints for each MCQ which will enable the students to evaluate their performance and identify areas requiring further attention.

The objective of this subject is to develop an understanding of the basic concepts and applications to establish the cost associated with the production of products and provision of services and apply the same to determine prices, understanding of cost accounting statements and to acquire the ability to apply information for cost ascertainment, planning, control and decision making. This case scenario booklet on Cost and Management Accounting assists Chartered Accountant students to know about the process of making prompt and knowledgeable business decisions.

After attaining conceptual clarity by reading the Study Material, you are expected to apply the concepts learnt in answering the MCQs given in this

booklet. You have to read the case scenarios and the MCQs, identify the concepts involved, apply the provisions correctly in addressing the issue raised/making the computation required in the MCQ, and finally, choose the correct answer. This process of learning and understanding the concepts and solving MCQs based thereon will help you attain conceptual clarity and hone your application and analytical skills so that you are able to approach the examination with confidence and a positive attitude.

We are confident that this booklet will serve as a valuable companion in your preparation journey. We encourage students to make the most of this resource by engaging deeply with the scenarios, reflecting on the MCQs, and embracing the learning process.

Happy Reading and Best Wishes!

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CASE SCENARIO 1

MEKEA Ltd is a well-known manufacturer of premium-quality wooden furniture, specializing in high-end products made from a particular grade of Oakwood. Since Oakwood is a critical raw material for MEKEA's premium furniture line, uninterrupted availability of this material is essential to maintain smooth production and timely order fulfillment.

The company operates throughout the year and follows a just-in-time–oriented production system, where delays in raw material supply can disrupt manufacturing schedules and lead to loss of customer goodwill. At the same time, excessive stocking of Oakwood results in high carrying and storage costs, making effective inventory control a key managerial concern.

The inventory manager at MEKEA is required to determine appropriate stock levels, re-order points, and order quantities by considering fluctuations in daily consumption, variability in supplier lead time, and the need to maintain a safety stock to guard against uncertainties.

The following information relating to Oakwood inventory is available:

- Annual demand: 50,000 units
- Ordering cost: ₹500 per order
- Carrying cost per unit per annum: ₹ 2
- Re-order period (lead time):
    - Minimum: 5 days
    - Average: 10 days
    - Maximum: 15 days
- Daily consumption:
    - Minimum: 100 units
    - Average: 150 units
    - Maximum: 200 units

Based on the above data, the inventory manager is required to answer the following multiple-choice questions.

MULTIPLE CHOICE QUESTIONS

1. What is the re-order level for Oakwood?
   (a) 1,500 units
   (b) 2,000 units
   (c) 2,250 units
   (d) 3,000 units
2. What is the re-order or economic order quantity for Oakwood?
   (a) 4,000 units
   (b) 5,000 units
   (c) 6,000 units
   (d) 7,000 units
3. What is the maximum stock level for Oakwood?
   (a) 6,000 units
   (b) 7,000 units
   (c) 7,500 units
   (d) 8,000 units
4. What is the minimum stock level for Oakwood?
   (a) 1,000 units
   (b) 1,500 units
   (c) 2,000 units
   (d) 2,500 units
5. How many units of Oakwood are typically held as average stock?
   (a) 2,000 units
   (b) 2,500 units

(c) 3,500 units

(d) 4,500 units

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) 3,000 units

Reason:

Reorder level = Max usage per day x Max lead time = 200 x 15 = 3,000 units

2. Option (b) 5,000 units

Reason:

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

Where:

A = Annual demand = 50,000 units

O = Ordering cost per order = ₹ 500

C = Carrying cost per unit per annum = ₹ 2

Working:

$$EOQ = \sqrt{\frac{2 \times 50,000 \times 500}{2}}$$

$$= \sqrt{2,50,00,000}$$

$$= 5,000 \text{ units}$$

3. Option (c) 7,500 units

Reason:

Maximum stock level = ROL + EOQ – (min usage x min lead time)

= 3,000 + 5,000 – (100 x 5) = 7,500 units

4. **Option (b)** 1,500 units

Reason:

Minimum stock level = ROL – (Average rate of consumption x Average re-order period)

= 3,000 - (150 x 10) = 1,500 units

5. **Option (d)** 4,500 units

Reason:

$$\text{Average Stock} = \frac{\text{Minimum Stock Level} + \text{Maximum Stock Level}}{2}$$

$$= \frac{1,500 + 7,500}{2}$$

$$= \frac{9,000}{2}$$

= 4,500 units

CASE SCENARIO 2

A company deals in manufacturing and selling hand sanitizers since 1998. Due to it's reputation company never really required any innovative selling techniques to sell its sanitizers. It sells the same at a very competitive price of ₹ 150 per unit. The variable cost ratio of the company was 67% in the previous year. After the COVID-19 government had ease the policies on manufacturing of sanitizers, this resulted in sudden increase of manufacturers in this industry. The reason that lured people to enter was that the process is pretty simpler to manufacture the sanitizers and it has a very high demand post Coronavirus. Due to this company lost a fair market share and incurred a loss of ₹ 85,000 last year, first time in 25 years. Company is proactive and took immediate steps to control the situation. For this they appointed a modern age sales manager and fired the old one. This new manager used digital marketing, data science, and artificial intelligence to increase the market presence & sales and as a result this year company sold 19,500 units, 30% more than the previous year, without changing the selling price. Old marketing techniques were not required anymore, thus they were removed. So it balanced out the new cost of digital marketing and other new techniques.

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

MULTIPLE CHOICE QUESTIONS

1. Find out the fixed cost of the company?
   (a) 10,50,250
   (b) 8,27,500
   (c) 10,60,000
   (d) 8,35,000
2 What is MOS in value of current year?
   (a) 4,42,500
   (b) - 2,57,700
   (c) 417,300
   (d) - 2,32,500

3. If target profit for the next year is ₹ 160,000, how much percentage increase in sale is required in comparison to current year.

   (a) 2.307%

   (b) 1.282%

   (c) 2.255%

   (d) 1.265%

4. In current year, if selling price is increased by 25%, demand will reduce by 9%. What will be the new MOS in value?

   (a) 15,43,687.5

   (b) 24,21,000

   (c) 20,91,937.5

   (d) 18,72,750

5. BEP in percentage and value of current year?

   (a) 85.75%, ₹ 25,07,750

   (b) 84.87%, ₹ 29,25,500

   (c) 84.90%, ₹ 29,25,000

   (d) 85.73%, ₹ 25,07,700

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) 8,27,500

Reason:

Selling price pu	= 150	
Variable cost pu	= 150 x 67%	= 100.5
Contribution pu	= 49.5	
Total contribution	= 49.5 x 15,000	= 7,42,500
Contribution + Loss	= Fixed cost,	
Fixed cost	= 7,42,500 + 85,000	= 8,27,500

2. Option (c) 417,300

BEP $= \frac{\text{Fixed cost}}{\text{contribution per unit}}$

$= \frac{8,27,500}{49.5}$ = 16,718 units

MOS in value = (Sales in units - BEP in units) x Selling price pu

= (19,500 – 16,718) x 150 = 4,17,300

3. Option (a) 2.307%

Target sales in units $= \frac{\text{(Fixed cost + Target profit)}}{\text{contribution per unit}}$

$= \frac{(8,27,500 + 1,60,000)}{49.5}$ = 19,950 units

Increase = 19,950 – 19,500 = 450 units

Increase in % $= \frac{450}{19,500}$ = 2.307%

4. Option (a) 15,43,687.5

New selling price = 187.5

Variable cost will remain same = 100.5

New contribution pu = 87

BEP in units $= \frac{\text{Fixed cost}}{\text{New contribution per unit}}$

$= \frac{8,27,500}{87}$ = 9,512 units

New sales units = 19,500(1 - 9%) = 17,745 units

MOS sales in ₹ = (17,745 – 9,512) x187.5 = 15,43,687.5

5. Option (d) 85.73%, ₹ 25,07,700

BEP as calculated in part 2 = 16,718 units

BEP in ₹ = 16,718 x 150 = 25,07,700

Total sales = 150 x 19,500 units = 29,25,000

BEP in % = BEP in ₹/ total sales $= \frac{25,07,700}{29,25,000}$ = 85.73%

CASE SCENARIO 3

Aroma Beverages Ltd. is a growing beverage company that produces and sells four varieties of tea-based drinks. The company operates across major cities and experiences strong seasonal fluctuations in demand. The management closely monitors quarterly sales trends to plan production and inventory levels effectively.

The sales quantity and selling price for the month of September 2024 are given below:

Product	Sales Quantity	Selling Price per unit (₹)
Classic Tea	1,40,000 units	20
Iced Tea	3,40,000 units	40
Herbal Infusion	4,20,000 units	20
Sparkling Tea	2,70,000 units	20

During the quarter October to December 2024, the company expects significant changes in demand due to seasonal weather variations, consumer preferences, and a marketing campaign launched for its flagship product, Classic Tea.

Based on market forecasts and internal analysis, the following estimates are made:

- The demand for Classic Tea will increase by 50% every month compared to the previous month, owing to cooler weather and the ongoing marketing campaign.
- The demand for Iced Tea will decrease by 30% each month as the weather cools down.
- The demand for Herbal Infusion will fall by 20% in October 2024 due to new competition but will remain constant thereafter.
- Due to a limited production capacity and distributor commitments, sales of Sparkling Tea will be restricted to 60,000 units in October, 50,000 units in November, and 30,000 units in December 2024.

There will be no change in the selling prices of the products during the quarter.

The standard quantity of closing stock from September 2024 to December 2024 is as follows:

Month	Classic Tea	Iced Tea	Herbal Infusion	Sparkling Tea
September 2024	12,000	13,000	11,000	7,500
October 2024	15,000	14,000	12,000	5,500
November 2024	13,000	15,000	10,000	6,000
December 2024	11,000	16,000	13,000	7,000

Additionally, the company plans to maintain sufficient stock levels to meet holiday season demand in December while ensuring that excess production is minimized due to limited storage capacity.

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

MULTIPLE CHOICE QUESTIONS

1. What will be the required production units for Classic Tea for each month - October, November, and December 2024 respectively?

   (a) 2,13,000; 3,13,000; 4,70,500

   (b) 2,10,000; 3,15,000; 4,72,500

   (c) 2,15,000; 3,12,000; 4,75,000

   (d) 2,14,000; 3,13,000; 4,72,000

2. What will be the production quantity for *Iced Tea* for October, November, and December 2024 respectively?

   (a) 2,38,000; 1,67,000; 1,17,000

   (b) 2,39,000; 1,67,600; 1,17,620

   (c) 2,40,800; 1,69,000; 1,19,500

   (d) 2,36,000; 1,66,000; 1,15,000

3. Find the production quantities for Herbal Infusion for October, November, and December 2024 respectively.

   (a) 3,37,000; 3,34,000; 3,39,000

   (b) 3,36,000; 3,36,000; 3,36,000

   (c) 3,40,000; 3,38,000; 3,40,000

   (d) 3,34,000; 3,30,000; 3,35,000

4. Determine the production requirements for *Sparkling Tea* for the three months respectively.

   (a) 59,000; 50,000; 31,000

   (b) 60,000; 50,000; 32,000

   (c) 58,000; 50,500; 31,000

   (d) 61,000; 49,000; 29,000

5. What will be the total sales value for Classic Tea and Iced Tea combined for the month of December 2024?

   (a) ₹ 1,48,20,000

   (b) ₹ 94,40,000

   (c) ₹ 46,80,000

   (d) ₹ 1,41,14,800

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. **Option (a)** 2,13,000; 3,13,000; 4,70,500

2. **Option (b)** 2,39,000; 1,67,600; 1,17,620

3. **Option(a)** 3,37,000; 3,34,000; 3,39,000

4. **Option (c)** 58,000; 50,500; 31,000

5. **Option (d)** ₹ 1,41,14,800

Reason:

Working Note:

Production Budget (in units)

Particulars	Classic Tea	Iced Tea	Herbal Infusion	Sparkling Tea
October 2024				
Sales*	2,10,000	2,38,000	3,36,000	60,000
Add: Closing stock	15,000	14,000	12,000	5,500
Total Quantity Required	2,25,000	2,52,000	3,48,000	65,500
Less: Opening stock	12,000	13,000	11,000	7,500
Production	**2,13,000**	**2,39,000**	**3,37,000**	**58,000**
November 2024				
Sales*	3,15,000	1,66,600	3,36,000	50,000
Add: Closing stock	13,000	15,000	10,000	6,000
Total Quantity Required	3,28,000	1,81,600	3,46,000	56,000
Less: Opening stock	15,000	14,000	12,000	5,500
Production	**3,13,000**	**1,67,600**	**3,34,000**	**50,500**
December 2024				
Sales*	4,72,500	1,16,620	3,36,000	30,000
Add: Closing stock	11,000	16,000	13,000	7,000
Total Quantity Required	4,83,500	1,32,620	3,49,000	37,000
Less: Opening stock	13,000	15,000	10,000	6,000
Production	**4,70,500**	**1,17,620**	**3,39,000**	**31,000**

*sales units are taken from sales budget

Sales Budget (in Units and sales value)

Particulars	Classic Tea	Iced Tea	Herbal Infusion	Sparkling Tea
October 2024 (in units)	2,10,000 [1,40,000 + (1,40,000 x 50%)]	2,38,000 [3,40,000 -(3,40,000 x 30%)]	3,36,000 [4,20,000 -(4,20,000x20%)]	60,000
October 2024 (Sales Value in ₹)	42,00,000 (2,10,000 x ₹ 20)	95,20,000 (2,38,000 x ₹ 40)	67,20,000 (3,36,000 x ₹20)	12,00,000 (60,000 x ₹ 20)
November 2024 (in units)	3,15,000 [2,10,000 +(2,10,000 x 50%)]	1,66,600 [2,38,000 -(2,38,000	3,36,000	50,000

		x 30%)]		
November 2024 (Sales Value in ₹)	63,00,000 (3,15,000 x ₹ 20)	66,64,000 (1,66,600 x ₹ 40)	67,20,000 (3,36,000 x ₹ 20)	10,00,000 (50,000 x ₹ 20)
December 2024 (in units)	4,72,500 [3,15,000 +(3,15,000 x 50%)]	1,16,620 [1,66,600 -(1,66,600 x 30%)]	3,36,000	30,000
December 2024 (Sales Value in ₹)	94,50,000 (4,72,500 x ₹ 20)	46,64,800 (1,16,620 x ₹ 40)	67,20,000 (3,36,000 x ₹ 20)	6,00,000 (30,000 x ₹ 20)

CASE SCENARIO 4

Bharat Pharma Ltd was established three years ago by a group of biotechnology researchers to commercialize a new therapeutic drug they had created. The production technology required for this drug is highly sophisticated and capital-intensive. As a result, the company incurs very high fixed manufacturing costs.

This situation is a major concern for Dr. Kavita Rao, the company's CEO. She recently organised a meeting of all senior managers to discuss profitability. Dr. Rao demonstrated how the average cost per unit decreases as production increases, due to the company's heavy fixed-cost base.

She explained:

"It is evident that as we move closer to the plant's maximum production capacity of 90,000 vials, the average cost per vial continues to fall. Producing and selling as near to that capacity as possible must improve our profitability."

The data she presented are shown below:

Production Volume (vials)	50,000	60,000	75,000	90,000
Average Cost per Unit (₹)	3,400	3,050	2,700	2,466.66

Current annual sales and production: 78,000 vials Selling price per vial: ₹ 3,900

(Average cost is defined as total fixed + variable cost divided by number of units produced.)

You are a member of the management accounting team. Soon after the meeting, you are contacted by Arun Mehta, the Marketing Director. He wants to understand how profitability changes with production.

Arun then informs you about a discussion he had with Dr. Rao. She again emphasized pushing production closer to the capacity of 90,000 vials.

Arun has the opportunity to secure an export order for 8,000 additional vials, but due to strong competition, the customer will pay only ₹ 2,550 per vial.

Dr. Rao believes the price is below cost and wants to reject it.

However, she says she would be willing to sell at ₹ 2,500 per vial, but only if the order is increased to 20,000 vials.

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

MULTIPLE CHOICE QUESTIONS

1. What are the total fixed costs of Bharat Pharma Ltd?
   (a) ₹ 6.5 crore
   (b) ₹ 8.4 crore
   (c) ₹ 10.5 crore
   (d) ₹ 12.3 crore
2. What is the profit at the current sales volume of 78,000 vials?
   (a) ₹ 4.2 crore
   (b) ₹ 7.1 crore
   (c) ₹ 9.78 crore
   (d) ₹ 11.3 crore
3. What is the break-even point (units) and margin of safety (as a percentage)?
   (a) 25,450 units and 52.25%
   (b) 32,900 units and 60%
   (c) 40,385 units and 48.22%
   (d) 50,200 units and 40%
4. What is the change in profit if the company accepts the order for 8,000 vials at ₹ 2,550?
   (a) Increase of ₹ 82 lakh
   (b) Increase of ₹ 1 crore
   (c) Increase of ₹ 2.1 crore
   (d) No change in profit

5. What is the change in profit if the company accepts the order for 20,000 vials at ₹ 2,500?

   (a) Increase of ₹ 1.68 crore

   (b) Increase of ₹ 0.32 crore

   (c) Increase of ₹ 2.8 crore

   (d) Decrease of ₹ 1.1 crore

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) ₹ 10.5 crore

Reason:

Total cost at 50,000

= 50,000 × ₹ 3,400 = ₹ 17,00,00,000

Total cost at 60,000

= 60,000 × ₹ 3,050 = ₹ 18,30,00,000

Difference in total cost = 18.3 crore – 17 crore = ₹ 1,30,00,000

Difference in output = 10,000 units

Variable cost per unit $= \frac{1,30,00,000}{10,000}$

= ₹ 1,300

Total Fixed Costs

Use total cost at 50,000 units:

Total cost = 50,000 × 3,400 = ₹ 17,00,00,000

Variable cost = 50,000 × 1,300 = ₹ 6,50,00,000

Fixed cost = 17,00,00,000 – 6,50,00,000

= ₹ 10,50,00,000

Fixed Costs = ₹ 10.5 crore

2. Option (c) ₹ 9.78 crore

Reason:

Profit at current sales of 78,000 units

Selling price = ₹ 3,900

Variable cost = ₹ 1,300

Contribution per unit = 3,900 – 1,300

= ₹ 2,600

Revenue = 78,000 × 3,900 = ₹ 30,42,00,000

Variable cost = 78,000 × 1,300 = ₹ 10,14,00,000

Contribution = 30.42 cr – 10.14 cr = ₹ 20,28,00,000

Profit = Contribution – Fixed cost

Profit = 20.28 cr – 10.5 cr

= ₹ 9,78,00,000

Profit = ₹ 9.78 crore

3. Option (c) 40,385 units and 48.22%

Reason:

Contribution per unit = ₹ 2,600

Break-even units $= \frac{\text{Fixed cost}}{\text{CPU}}$

$= \frac{10,50,00,000}{2,600}$

= 40,385 units

Break-even point = 40,385 units

Current sales = 78,000 units

Break-even = 40,385 unit

MOS $= \frac{78,000 - 40,385}{78,000} \times 100$

$= \frac{37,615}{78,000} \times 100$

= 48.22%

Margin of safety = 48.22%

4. **Option (b)** Increase of ₹ 1 crore

Reason:

Profit impact of accepting 8,000 vials at ₹ 2,550

Contribution per unit = Selling price – Variable cost

= 2,550 – 1,300

= ₹ 1,250

Additional contribution = 8,000 × 1,250

= ₹ 1,00,00,000

Profit increases by ₹ 1 crore

(Within plant capacity: 78,000 + 8,000 = 86,000 < 90,000)

5. **Option (b)** Increase of ₹ 0.32 crore

Reason:

Domestic sales contribution per unit

Selling price = ₹ 3,900

Variable cost = ₹ 1,300

Contribution = ₹ 2,600 per vial

Export order contribution per unit

Selling price = ₹ 2,500

Variable cost = ₹ 1,300

Contribution = ₹ 1,200 per vial

(i) Contribution gained from export order

20,000 × ₹ 1,200

= ₹ 2,40,00,000 (₹ 2.4 crore)

(ii) Contribution lost by reducing domestic sales

8,000 × ₹ 2,600

= ₹ 2,08,00,000 (₹ 2.08 crore)

Net Change = Gain – Loss

= ₹ 2,40,00,000 – ₹ 2,08,00,000

= ₹ 32,00,000

Net Profit Increase = ₹ 0.32 crore

CASE SCENARIO 5

The Greenfield Recreation Club, a well-known community hub in the city, has been operating for over 25 years. Besides sports facilities and hobby classes, the club runs a dedicated public library for its members. Over the years, the library has grown into a quiet learning space where adults, students, and retirees gather for reading, research, and social interaction.

Recently, the club noticed a steady rise in library usage, especially after it introduced digital reading corners and weekend storytelling sessions for kids. As a result, the committee has decided to review the financial performance of the library to ensure it remains sustainable while continuing to serve the community.

To support the library, the club follows a long-standing policy of offering an annual subsidy of up to ₹ 6 per club member, drawn from the general funds. This subsidy can cover maintenance, utilities, and book purchases when necessary. However, with rising costs and increasing expectations, the club now wants to re-evaluate whether this subsidy is sufficient and whether the library is being managed efficiently.

The management provides the following operational details for the current year:

- The club has 4,800 active members, out of which 1,200 have opted for the library membership.
- Each library member pays a monthly fee of ₹ 110, which supports routine expenses.
- To encourage timely book returns, the library imposes a fine of ₹ 2 per book per day.
- On average, 450 books are returned late per month, each delayed by around 6 days.
- Due to increasing member engagement, late returns have slowly increased, indicating heavy circulation of books.

The library's book collection includes:

- 60,000 old books, requiring routine repairs, dusting, rebinding, and pest control.
- These activities cost about ₹ 15 per book per year.
- To stay updated with current releases and replace damaged copies, the library purchases 1,000 new books annually at a cost of ₹ 320 per book.

To manage daily operations smoothly, the library employs:

- 1 Librarian earning ₹ 12,000 per month
- 3 Assistant Librarians, each earning ₹ 8,000 per month
- 1 Clerk earning ₹ 5,000 per month

These employees handle catalogue management, member services, issuing and returning books, event coordination, and stock upkeep.

You are required to answer the following questions :

MULTIPLE CHOICE QUESTIONS

1. What is the Cost incurred per library member per month (excluding cost of new books)

   (a) ₹ 96.67

   (b) ₹ 55.00

   (c) ₹ 61.25

   (d) ₹ 73.75

2. What is the Cost incurred per club member per month (excluding cost of new books)

   (a) ₹ 96.67

   (b) ₹ 24.17

   (c) ₹ 52.25

   (d) ₹ 13.75

3. Calculate the Net income earned by the library per year.

   (a) ₹ 7,65,200

   (b) ₹ 6,42,600

   (c) ₹ 4,86,200

   (d) ₹ 2,56,800

4. How many extra books are currently being purchased per year?

   (a) 0 books (no excess; purchase is within limit)

   (b) 350 books

   (c) 198 books

   (d) 220 books

5. Calculate the amount of more subsidy required:

   (a) ₹ 63,360

   (b) ₹ 42,600

   (c) ₹ 86,200

   (d) ₹ 21,500

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ₹ 96.67

Reason:

Particular		**Amount (₹)**
Librarian	₹ 12,000 x 12 x 1 person	1,44,000
Assistant librarians	₹ 8,000 x 12 x 3 persons	2,88,000
Clerk	₹ 5,000 x 12 x 1 person	60,000
Total Staff Cost		4,92,000
Old Books Maintenance	60,000 old books × ₹ 15 per year	9,00,000
Total Annual Cost (excluding new books)		13,92,000

Cost per member per year

= 13,92,000 / 1,200

= ₹ 1,160

Cost per library member per month

= 1,160 / 12

= ₹ 96.67

2. Option (b) ₹ 24.17

Reason:

Cost per member per year

= 13,92,000 / 4,800

= ₹ 290

Cost per library member per month

= 290 / 12

= ₹ 24.17

3. Option (d) ₹ 2,56,800

Reason:

Total Revenue

Particulars	**Amount (₹)**
Library fees per month (1,200 members × ₹ 110)	1,32,000
Late fees per month (450 books × 6 days × ₹ 2)	5,400
Total Revenue per month	1,37,400
Total Revenue per year (1,37,400×12)	16,48,800

Net Income per Year

= Total revenue – Total cost

= 16,48,800 – 13,92,000

= ₹ 2,56,800

4. **Option (c)** 198 books

Reason:

Cost per new book	320
Maximum number of new books per annum (₹ 2,56,800 ÷ ₹ 320)	802 nos.
Number of books purchased	1,000 nos.
Excess books purchased (1,000 nos. – 802 nos.)	198 nos.

5. **Option (a)** ₹ 63,360

Reason:

Additional Subsidy Required

= Extra books × cost per book

= 198 × 320

= ₹ 63,360

CASE SCENARIO 6

SpeedEx Logistics, established in 2010 and headquartered in Mumbai, operates in the transportation and logistics industry as a third-party logistics (3PL) service provider. The company offers end-to-end logistics solutions to manufacturing and trading entities across India.

SpeedEx Logistics owns a diversified fleet comprising 10 trucks, 15 vans, and 5 trailers, each deployed based on the nature of cargo and delivery requirements. For the purpose of cost control and pricing decisions, the management has decided to conduct a detailed operating cost analysis of one of its trucks, Truck R-40, for the month of July 2025.

The operational details of Truck R-40 for the month are as follows:

Days Maintained	30
Days Operated	25
Total Hours Operated	300
Total Kilometres Covered	2,500
Total Tonnage Carried (4 tonne-load per trip, return journey empty 2 round trips per day)	

The following further information is made available:

A. Operating Costs for the month: Petrol ₹ 400, Oil ₹170, Grease ₹ 90, Wages to driver ₹ 550, Wages to Worker ₹ 350.

B. Maintenance Costs for the month: Repair ₹ 170, Overhaul ₹ 60, Tyres ₹ 150, Garage charges ₹ 100.

C. Fixed Costs for the month based on the estimates for the year: Insurance ₹ 50, Licence, tax etc. ₹ 80, Interest ₹ 40, Other Overheads ₹ 190

D. Capital costs: Cost of acquisition ₹ 54,000; Residual Value at the end of 5 years life ₹ 36,000.

The management of SpeedEx Logistics wants to compute various cost per unit measures to evaluate operational efficiency and determine appropriate freight rates.

Based on the above information, answer the following multiple-choice questions.

MULTIPLE CHOICE QUESTIONS

1. What is the cost per day maintained of Truck R-40?
   (a) ₹ 90
   (b) ₹ 95
   (c) ₹ 100
   (d) ₹ 110
2. What is the cost per day operated of Truck R-40?
   (a) ₹ 110
   (b) ₹ 120
   (c) ₹ 108
   (d) ₹ 144
3. What is the cost per hour operated of Truck R-40?
   (a) ₹ 9.00
   (b) ₹ 9.50
   (c) ₹ 10.00
   (d) ₹ 10.50
4. What is the cost per kilometre covered by Truck R-40?
   (a) ₹ 1.10
   (b) ₹ 1.21
   (c) ₹ 1.30
   (d) ₹ 1.08
5. What is the cost per commercial tonne-kilometre of Truck R-40?
   (a) ₹ 0.30
   (b) ₹ 0.54

(c) ₹ 0.40

(d) ₹ 0.45

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ₹ 90

Reason:

Cost per days maintained = ₹ 2700/30 days = ₹ 90

2. Option (c) ₹ 108

Reason:

Cost per days operated = ₹ 2700/25 days = ₹ 108

3. Option (a) ₹ 9.00

Reason:

Cost per hours operated = ₹ 2700/300 hours = ₹ 9

4. Option (d) ₹ 1.08

Reason:

Cost per kilometres covered = ₹ 2700/2500 kms = ₹ 1.08

5. Option (b) ₹ 0.54

Reason:

Cost per commercial tonne kms = ₹ 2700/5000 tonne kms = ₹ 0.54

*Commercial tonne kms = Total distance travelled x Average load

$$= \frac{(4 \text{ tonnes} + 0 \text{ tonnes})}{2} \times 2500 \text{ kms}$$

= 5000 tonne kms

Working Note:

	Particulars	**Amount in ₹**
A	**Operating costs:**	
	Petrol	400

	Oil	170
	Grease	90
	Wages to Driver	550
	Wages to Worker	350
	(A)	1,560
B	**Maintenance Costs:**	
	Repairs	170
	Overhead	60
	Tyres	150
	Garage Charges	100
	(B)	480
C	**Fixed Cost:**	
	Insurance	50
	License, Tax etc.	80
	Interest	40
	Other Overheads	190
	Depreciation $\frac{54,000-36,000}{5\times12}$	300
	(C)	660
	Total Cost (A + B + C)	2,700

CASE SCENARIO 7

Parth Ltd. operates in insurance business. Previous Year, the company launched a new term insurance policy called 'Max Jivan' and incurred the following expenditure throughout the year:

Particulars	Amount (₹)
Claim management cost	52,82,000
Facilities cost	6,49,82,500
Employees cost	2,25,18,000
Cost of marketing of the policy	19,30,71,000
Policy development cost	4,86,50,000
Policy issuance cost	4,10,05,000
Policy servicing cost	13,40,65,500
Sales support expenses	4,44,80,000
Office administration cost	6,67,20,000
I.T. Cost	30,71,90,000
Postage and logistics	4,50,36,000

MULTIPLE CHOICE QUESTIONS

1. You are required to ascertain the cost of the policy 'Max Jivan' segregated into four main activities namely (a) Marketing and Sales support (b) Operations (c) I.T. Cost and (d) Support functions.

   (a) Marketing and Sales support- ₹ 23,75,51,000, Operations - ₹ 22,90,02,500, I.T. Cost- ₹ 30,71,90,000 and Support functions- ₹ 19,92,56,500

   (b) Marketing and Sales support- ₹ 28,62,01,000, Operations - ₹ 22,53,88,500, I.T. Cost- ₹ 30,71,90,000 and Support functions - ₹ 15,42,20,500

(c) Marketing and Sales support - ₹ 28,62,01,000, Operations - ₹ 18,03,52,500, I.T. Cost- ₹ 30,71,90,000 and Support functions - ₹ 19,92,56,500

(d) Marketing and Sales support- ₹ 24,17,21,000, Operations - ₹ 22,48,32,500, I.T. Cost- ₹ 30,71,90,000 and Support functions - ₹ 19,92,56,500

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. **Option (c)** Marketing and Sales support - ₹ 28,62,01,000, Operations - ₹ 18,03,52,500, I.T. Cost - ₹ 30,71,90,000 and Support functions - ₹ 19,92,56,500

Reason:

Calculation of total cost for 'Max Jivan' Insurance policy

	Particulars	Amount (₹)	Amount (₹)
a.	**Marketing and Sales support:**		
	- Policy development cost	4,86,50,000	
	- Cost of marketing	19,30,71,000	
	- Sales support expenses	4,44,80,000	28,62,01,000
b.	**Operations:**		
	- Policy issuance cost	4,10,05,000	
	- Policy servicing cost	13,40,65,500	
	- Claim management cost	52,82,000	18,03,52,500
c.	**IT Cost**		30,71,90,000
d.	**Support functions**		
	- Postage and logistics	4,50,36,000	
	- Facilities cost	6,49,82,500	
	- Employees cost	2,25,18,000	
	- Office administration cost	6,67,20,000	19,92,56,500
	Total Cost		**97,30,00,000**

CASE SCENARIO 8

RN Ltd. manufactures two primary products, P^1 and P^2, through a joint process and a by-product, R^{12}, is produced spontaneously. The relationship between output quantities to the direct material input stays stable.

To allocate joint production costs to the primary products, the company utilizes the physical volume method.

During the month of March, company incurred joint production costs of

₹ 1,30,00,000. As the primary products are not freely marketable at the split-off point, they are processed further.

The net realizable value of the by-product is treated as deductions from the joint production costs before the joint costs are allocated to the primary products.

The information regarding company's production and its cost during the month of March is provided below:

Particulars	P^1	P^2	R^{12}
Output (kg.)	1,95,000	3,90,000	81,250
Selling price per kg.	₹ 200	₹ 120	₹ 40
Further processing costs	₹ 26,00,000	₹ 39,00,000	-

MULTIPLE CHOICE QUESTIONS

1. FIND OUT the amount of joint product cost to be allocated to P^2 by using the physical volume method.

   (a) ₹ 65,00,000

   (b) ₹ 97,50,000

   (c) ₹ 39,00,000

   (d) ₹ 32,50,000

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ₹ 65,00,000

Reason:

Calculation of Net joint costs to be allocated:

Particulars	Amount (₹)
Joint Costs	1,30,00,000
Less: Net Realizable value of by-product R^{12} (81,250 kg. × ₹ 40)	32,50,000
Net joint costs to be allocated	97,50,000

Therefore, the amount of joint product cost to be allocated to P^2 by using the physical volume method

$$= \left(\frac{\text{Physical quantity of } P^2}{\text{Total quantity}}\right) \text{X Net joint costs to be allocated}$$

$$= \left(\frac{3,90,000 \text{ kg}}{5,85,000 \text{ kg}}\right) \text{X ₹ } 97,50,000 = \text{₹ } 65,00,000$$

CASE SCENARIO 9

With the rise in carbon dioxide, a greenhouse gas, release in the environment, when fossil fuels are burned, Earth's natural greenhouse effect is becoming too weak causing global warming.

To contribute towards global environment for the betterment, various cars and scooters manufacturing companies are shifting their production towards electric vehicles (EVs) manufacturing. Companies are heavily investing in research, development and production of EVs.

Olay Ltd. is also one the companies belonging to scooter manufacturing industry. Watching its rivalries shifting their production to EVs, the management of Olay Ltd. decided to take the advantage of this open opportunity.

It had been only 4 years since the company started its production of EVs, but last year, the management of the company also decided to expand its product line to 3 variants of the scooter, viz., Olay EV Max, Olay EV Ultra and Olay EV Pro.

The following information is provided for the current year from the books of Olay Ltd.:

	Olay EV Max	Olay EV Ultra	Olay EV Pro
Average revenue per unit (₹)	84,975	1,15,500	2,17,800
Average cost of goods sold per unit (₹)	82,500	1,10,000	1,98,000

Last year, when the company initially expanded its product line, the sales were not much noticeable comparative to its earlier category of scooters. The company could only sold 528, 330 and 110 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively against the order received of 616, 396 and 165 units respectively. However, with the increasing awareness about the EVs, more people started buying EVs and, during the current year, the company's order and sales jumped to five times the last year.

For earlier years, Olay Ltd. used gross margin percentage method to evaluate the relative profitability for all of its EVs.

However, from current year, company plans to use activity based costing for analysing the profitability.

The Activity analysis of Olay Ltd. is as under:

Activity Area	Cost-allocation base
Customer purchase order processing	Purchase orders by customers
Line-item ordering	Line-items per purchase order
Store delivery	Unit sold
Cartons dispatched to stores	Cartons dispatched to a store per Unit
Shelf-stocking at customer store	Hours of shelf-stocking

All the support costs for the current year amounts to ₹ 66,23,760. These support costs are assigned to all the activity areas. The cost in each area and the quantity of the cost allocation basis used in that area are as follows:

Activity Area	Total costs (₹)	Total Units of Cost-allocation base
Line-item ordering	14,04,480	66,110 line items
Cartons dispatched to store	16,72,000	3,39,240 cartons
Shelf-stocking at customer store	2,25,280	2,904 hours

The Customer purchase order processing costs ₹ 17,60,000 along with the store delivery cost of ₹ 15,62,000.

Some of the other information is also provided below:

	Olay EV Max	Olay EV Ultra	Olay EV Pro
Average number of line items per order	10	12	14
Average number of cartons shipped per store unit	16	80	300
Average number of hours of shelf-stocking per store delivery	0.1	0.6	3

The company wants you to FIGURE OUT the following to ascertain which of the product line is more profitable:

MULTIPLE CHOICE QUESTIONS

1. For the current year, how much is the order received and the units sold for Olay EV Max, Olay EV Ultra and Olay EV Pro respectively?

   (a) Order received- 616, 396 and 165 units; sold- 528, 330 and 110 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

   (b) Order received- 3,696, 2,376 and 990 units; sold- 3,168, 1,980 and 660 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

   (c) Order received- 528, 330 and 110 units; sold- 616, 396 and 165 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

   (d) Order received- 3,080, 1,980 and 825 units; sold- 2,640, 1,650 and 550 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

2. The total gross-margin percentage and the operating income percentage, for the current year would be:

   (a) Gross-margin - 3.72% and Operating income - 4.96%

   (b) Gross-margin - 4.96% and Operating income - 3.72%

   (c) Gross-margin - 4.96% and Operating income - 4.96%

   (d) Gross-margin - 3.72% and Operating income - 3.72%

3. The cost driver rate relating to all the five activity areas would be:

   (a) Customer purchase order processing- ₹ 363.64 per order, Line item ordering- ₹ 21.24 per line item order, Store delivery- ₹ 265.42 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 77.58 per hour.

   (b) Customer purchase order processing- ₹ 299.07 per order, Line item ordering- ₹ 21.24 per line item order, Store delivery- ₹ 322.73 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 77.58 per hour.

   (c) Customer purchase order processing- ₹ 299.07 per order, Line item ordering- ₹ 77.58 per line item order, Store delivery- ₹ 322.73 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 21.24 per hour.

(d) Customer purchase order processing- ₹ 322.73 per order, Line item ordering- ₹ 21.24 per line item order, Store delivery- ₹ 299.07 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 77.58 per hour.

4. The operating cost of the individual product line, as per the method proposed for the current year w.r.t. profitability analysis, would be:

(a) Olay EV Max- ₹ 16,11,013, Olay EV Ultra- ₹ 23,56,890 and Olay EV Pro- ₹ 26,56,059

(b) Olay EV Max- ₹ 23,56,890, Olay EV Ultra- ₹ 26,56,059 and Olay EV Pro- ₹ 16,11,013

(c) Olay EV Max- ₹ 26,56,059, Olay EV Ultra- ₹ 16,11,013 and Olay EV Pro- ₹ 23,56,890

(d) Olay EV Max- ₹ 26,56,059, Olay EV Ultra- ₹ 23,56,890 and Olay EV Pro- ₹ 16,11,013

5. Operating income as a percentage of revenues of each product line, namely Olay EV Max, Olay EV Ultra and Olay EV Pro, when all the support costs are allocated using an activity-based costing system would be:

(a) Olay EV Max- 1.73%, Olay EV Ultra- 3.53% and Olay EV Pro- 7.75%

(b) Olay EV Max- 1.18%, Olay EV Ultra- 1.24% and Olay EV Pro- 1.34%

(c) Olay EV Max- 2.91%, Olay EV Ultra- 4.76% and Olay EV Pro- 9.09%

(d) Olay EV Max- 1.78%, Olay EV Ultra- 3.70% and Olay EV Pro- 8.52%

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) Order received- 3,080, 1,980 and 825 units; sold- 2,640, 1,650 and 550 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

Particulars	Olay EV Max (units)	Olay EV Ultra (units)	Olay EV Pro (units)	Total (units)
Previous year order received	616	396	165	1177
Current Year order (5 times the last year)	**3,080**	**1,980**	**825**	**5,885**

Previous year sales	528	330	110	968
Current Year sales (5 times the last year)	**2,640**	**1,650**	**550**	**4,840**

2. **Option (b)** Gross-margin - 4.96% and Operating income - 3.72%

Reason:

Statement of gross margin percentage and operating income percentage

Particulars	Olay EV Max	Olay EV Ultra	Olay EV Pro	Total
Revenues (A) (₹)	22,43,34,000	19,05,75,000	11,97,90,000	53,46,99,000
	(2,640 × ₹ 84,975)	(1,650 × ₹ 1,15,500)	(550 × ₹ 2,17,800)	
Less: Cost of goods sold (B) (₹)	21,78,00,000	18,15,00,000	10,89,00,000	50,82,00,000
	(2,640 × ₹ 82,500)	(1,650 × ₹ 1,10,000)	(550 × ₹ 1,98,000)	
Gross Margin (A - B) (₹)	65,34,000	90,75,000	1,08,90,000	2,64,99,000
Less: Operating costs (₹)				66,23,760
Operating income (₹)				1,98,75,240
Gross Margin %				4.96%
Operating income %				3.72%

3. **Option (b)** Customer purchase order processing- ₹ 299.07 per order, Line item ordering- ₹ 21.24 per line item order, Store delivery- ₹ 322.73 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 77.58 per hour.

Reason:

Computation of cost driver rate relating to all the activity areas

Particulars	(₹)
Customer purchase order processing	299.07 per order

(₹ 17,60,000/ 5,885 orders)	
Line item ordering (₹ 14,04,480/ 66,110 line items)	21.24 per line item order
Store delivery (₹ 15,62,000/ 4,840 unit sold)	322.73 per unit sold
Cartons dispatched (₹ 16,72,000/ 3,39,240 dispatches)	4.93 per dispatch
Shelf-stocking at customer store (₹ 2,25,280/ 2,904 hours)	77.58 per hour

4. **Option (d)** Olay EV Max- ₹ 26,56,059, Olay EV Ultra- ₹ 23,56,890 and Olay EV Pro- ₹ 16,11,013

Reason:

Computation of operating cost

	Olay EV Max (₹)	**Olay EV Ultra (₹)**	**Olay EV Pro (₹)**	**Total (₹)**
Customer purchase order processing	9,21,136 (₹ 299.07 × 3,080 orders)	5,92,159 (₹ 299.07 × 1,980 orders)	2,46,733 (₹ 299.07 × 825 orders)	17,60,027
Line item ordering	6,54,192 (₹ 21.24 × 10 x 3,080 orders)	5,04,662 (₹ 21.24 × 12 x 1,980 orders)	2,45,322 (₹ 21.24 × 14 × 825 orders)	14,04,176
Store delivery	8,52,007 (₹ 322.73 × 2,640 unit sold)	5,32,505 (₹ 322.73 × 1,650 unit sold)	1,77,502 (₹ 322.73 × 550 unit sold)	15,62,013
Cartons dispatched	2,08,243 (₹ 4.93 × 16 cartons × 2,640 units)	6,50,760 (₹ 4.93 × 80 cartons × 1,650 units)	8,13,450 (₹ 4.93 × 300 cartons × 550 units)	16,72,453
Shelf stocking	20,481 (₹ 77.58 × 2,640 deliveries × 0.1 Av. hrs.)	76,804 (₹ 77.58 × 1,650 deliveries × 0.6 Av. hrs)	1,28,007 (₹ 77.58 × 550 deliveries × 3 Av. hrs)	2,25,292
Operating cost	**26,56,059**	**23,56,890**	**16,11,013**	**66,23,962***

*Difference due to rounding off.

5. **Option (a)** Olay EV Max- 1.73%, Olay EV Ultra- 3.53% and Olay EV Pro- 7.75%

Reason:

Operating Income Statement

(using the Activity based Costing system)

	Olay EV Max	**Olay EV Ultra**	**Olay EV Pro**
Revenues (₹) (A)	22,43,34,000 (2,640 × ₹ 84,975)	19,05,75,000 (1,650 × ₹ 1,15,500)	11,97,90,000 (550 × ₹ 2,17,800)
Less: Cost of goods sold (₹) (B)	21,78,00,000 (2,640 × ₹ 82,500)	18,15,00,000 (1,650 × ₹ 1,10,000)	10,89,00,000 (550 × ₹ 1,98,000)
Gross Margin (₹) (C) (A - B)	65,34,000	90,75,000	1,08,90,000
Operating cost (₹) (D) (Refer to (iv) part of the answer)	26,56,059	23,56,890	16,11,013
Operating income (₹) (E) (C–D)	38,77,941	67,18,110	92,78,987
Operating income (in %) (Operating income/ Revenue) × 100	**1.73%**	**3.53 %**	**7.75 %**

CASE SCENARIO 10

EcoTrans Logistics Pvt. Ltd. is a regional goods transport company based in the industrial hub of LogiPort, providing daily freight services to and from GreenCity, a fast-growing metropolitan area located 120 kilometers away. The company has been operating for over a decade and has built a reputation for timely deliveries, especially for fast-moving consumer goods (FMCGs), packaged food items, and light industrial components.

To meet increasing demand, EcoTrans has recently expanded its fleet and now operates 24 transport vehicles of varying capacities. The company promises reliable daily service, and each vehicle typically completes one round trip per day, carrying cargo in both directions. EcoTrans emphasizes sustainability and efficiency, with systems in place for fuel monitoring, vehicle maintenance, and cost control.

However, to remain competitive and ensure profitability in a cost-sensitive industry, management has decided to undertake a detailed cost analysis for the month of April 2025. This analysis will guide pricing strategy and assess whether current operations are yielding the desired profit margin of 20% on freight revenue.

The following data has been compiled by the Finance and Operations departments for cost analysis and pricing decision-making.

Fleet Composition:

No. of Vehicles	Capacity per Vehicle (MT)
6	10 MT
8	14 MT
6	18 MT
4	22 MT

Each vehicle operates one round trip per day on average. Vehicles are loaded to 85% capacity on the forward journey and 65% on the return. On average, 12% of the fleet is under maintenance at any time.

The company operated for 26 days in April 2025.

Monthly Expenditure (April 2025)

Description	Amount (₹)
Salary of Transport Manager	75,000
Salary of 32 Drivers @ ₹22,000 each	7,04,000
Wages of 28 Helpers @ ₹13,000 each	3,64,000
Loading & Unloading Charges per Trip	950
Consumable Stores (Fuel Additives, Tools)	1,50,000
Toll Charges	250 per Trip
Insurance (Annual Premium)	9,60,000
Road Licence Fee (Annual)	5,40,000
Diesel Cost per Litre	82
Mileage per Vehicle	4.5 km/litre
Lubricants & Oils	1,30,000
Tyres, Tubes, Spare Parts (Running basis)	4,80,000
GPS & Fleet Tracking Subscription (Monthly Basis)	2,000 per vehicle
Driver Safety & Training Programmes	80,000
Garage Rent (Annual)	10,80,000
Workshop Repairs (Routine & Emergency)	3,40,000
Electricity & Utility Expenses	62,000
Depreciation on Vehicles (Monthly)	6,80,000

The company operates an in-house workshop that handles routine and emergency repairs for both its own fleet and external vehicles. As part of the internal cost allocation, 45% of the Transport Manager's salary is charged to the workshop to reflect time and resources dedicated to overseeing maintenance operations. In return, the transport department has been apportioned ₹95,000 by the workshop for repair and service support during the month.

Being a finance manager of the company, you are required to answer the followings (5 MCQs):

MULTIPLE CHOICE QUESTIONS

1. What is the total fixed cost for April 2025?
   (a) ₹ 21,95,000
   (b) ₹ 20,89,750
   (c) ₹ 22,89,250
   (d) ₹ 19,98,250
2. Calculate the total variable cost for April 2025
   (a) ₹ 44,71,885
   (b) ₹ 31,50,000
   (c) ₹ 29,65,920
   (d) ₹ 48,45,000
3. What should be the freight rate per ton-km to achieve a 20% profit margin?
   (a) ₹ 4.461
   (b) ₹ 5.576
   (c) ₹ 4.372
   (d) ₹ 3.845
4. Calculate the total wages paid to loading and unloading labour in April 2025.
   (a) ₹ 10,43,520
   (b) ₹ 10,42,560
   (c) ₹ 9,85,000
   (d) ₹ 10,37,400
5. What is the total ton-kilometers (ton-km) generated by EcoTrans Logistics in April 2025?
   (a) 1,31,789 ton-km
   (b) 5,49,120 ton-km
   (c) 15,15,571 ton-km

(d) 26,00,000 ton-km

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. **Option (c)** ₹ 22,89,250
2. **Option (a)** ₹ 44,71,885
3. **Option (b)** ₹ 5.576
4. **Option (d)** ₹ 10,37,400
5. **Option (c)** 15,15,571 ton-km

Reason:

Operating Cost Sheet for the month

Particulars		**Amount (₹)**
A.	**Fixed Charges:**	
	Transport Manager's Salary (55% x ₹ 75,000)	41,250
	Driver Salaries (32 x ₹ 22,000)	7,04,000
	Helper Wages (28 x ₹ 13,000)	3,64,000
	GPS Subscription (24 x ₹ 2,000)	48,000
	Driver Safety & Training Programmes	80,000
	Insurance (₹ 9,60,000 ÷ 12)	80,000
	Road Licence Fee (₹ 5,40,000 ÷ 12)	45,000
	Garage Rent (₹ 10,80,000 ÷ 12)	90,000
	Electricity & Utility Expenses	62,000
	Depreciation on Vehicles	6,80,000
	Workshop Repairs (Apportioned)	95,000
	Total Fixed Costs	**22,89,250**
B.	**Variable Charges:**	
	Loading & Unloading Charges (WN.1)	10,37,400
	Toll Charges (W.N.2)	2,73,000
	Diesel Cost (W.N.3)	24,01,485
	Lubricants & Oils	1,30,000

	Tyres, Tubes, Spare Parts	4,80,000
	Consumable Stores	1,50,000
	Total Variable Costs	**44,71,885**
C.	**Total Cost (A + B)**	**67,61,135**
D.	Total Ton-Kms. (W. N. 4)	15,15,571
E.	**Cost per ton-km. (C ÷ D)**	**4.461**

Calculation of Chargeable Freight

Cost per ton-km.	₹ 4.461
Add: Profit @ 20% on freight or 25% on cost	₹ 1.115
Chargeable freight per ton-km.	**₹ 5.576**

Working Notes:

1. Wages paid to loading and unloading labours

Numbers of vehicles available per day x No. of days x trips x wages per trip

(24 vehicles x 88%) x 26 days x 2 trips x ₹950

21 x 2 x 26x 950 = ₹10,37,400

2. Toll Charges

Numbers of vehicles available per day x No. of days x trips x toll charges per trip

21 x 2 x 26x 250 = ₹2,73,000

3. Cost of Diesel:

Distance covered by each vehicle during the month

= 120 k.m. × 2 × 26 days × 88% = 5,491.2 km.

Consumption of diesel = $\frac{5,491.2\text{k.m.} \times 24\text{ vehicles}}{4.5\text{k.m.}}$ = 29,286.4 litres

Cost of diesel = 29,286.4 litres × ₹ 82 = ₹24,01,485

4. Calculation of total ton-km:

Total Ton-Km. = Total Capacity × Distance covered by each vehicle × Average Capacity Utilisation ratio.

$$= \left[\left(6 \times 10\,MT\right) + \left(8 \times 14 MT\right) + \left(6 \times 18\,MT\right) + \left(4 \times 22\,MT\right)\right] \times 5,491.2 k.m. \times \frac{\left(85\% + 65\%\right)}{2}$$

= (60 + 112 + 108 + 88) x 5,491.2 x 75%

= 368 x 5,491.2 x 75%

= 15,15,571 ton-km.

CASE SCENARIO 11

In order to provide employment opportunities in rural areas of Madhya Pradesh, State government decided to give interest free loan up to ₹ 30,00,00,000 to Khadi cloth industrialists. In return these industrialists are expected to set up the factory and produce khadi cloth in such rural areas.

The loan is refundable after 20 years in lump sum. Madhya Pradesh government kept a stipulation that 40% of cloth production shall be supplied to government at a nominal rate of ₹ 10 per metre. This supply shall be used by the government for making uniforms of class IV employees of state government.

Haryana cloth mill of Hissar took loan of ₹ 30 crores and commenced business in Dindori, a rural district of Madhya Pradesh. Production commenced at Dindori and following are the details:

Production during the year 2023-24	**40,00,000 metres of Khadi cloth**
Raw cotton used	₹ 1,20,00,000
Direct wages	₹ 1,80,00,000
Freight inwards	₹ 8,00,000
Factory overheads estimated at 30% of prime cost	
Office and administration overheads estimated at 20% of factory cost	
Donations	₹ 2,00,000
Fines & Penalties	₹ 5,00,000
Selling and distribution overhead estimated at	₹ 1,69,52,000

The selling price to be charged from general public is to be fixed in such a way as to earn a profit of 30% on total cost of sales and price should be in multiple of Re.1.

Actual overheads incurred are as under:-

(1) Factory overheads = ₹ 89,50,000

(2) Office and administration overheads = ₹ 90,50,000

(3) Selling and distribution overheads = ₹ 1,70,00,000

The company has been requested to submit a cost audit report to the government detailing the production activities in its factory. As part of this process, the government has provided a draft format containing several key questions that must be addressed within the report. These questions are designed to ensure the accuracy and transparency of the company's production costs, and they play a critical role in shaping the audit report. Before proceeding with the preparation of the final cost audit report, it is essential that the company carefully reviews and works out the answers to these questions.

MULTIPLE CHOICE QUESTIONS

1. Determine cost of sales per metre of cloth produced?
   (a) ₹ 13.25
   (b) ₹ 16.25
   (c) ₹ 18.25
   (d) ₹ 15.25
2. Determine the loss element per metre in government supply?
   (a) ₹ 7.25
   (b) ₹ 5.75
   (c) ₹ 4.50
   (d) ₹ 6.25
3. What will be the selling price per metre charged from general public?
   (a) ₹ 29
   (b ₹ 27
   (c) ₹ 31
   (d) ₹ 33
4. What will be the rate of return on overall sales proceeds as per financial accounts?
   (a) 22.313%
   (b) 18.781%

(c) 24.387%

(d) 20.564%

5. What will be the net profit in financial accounts from the factory, if government fixed the price of the cloth to be sold to general public at ₹ 28?

(a) ₹ 1,67,20,000

(b) ₹ 1,66,00,000

(c) ₹ 1,66,20,000

(d) ₹ 1,67,00,000

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) ₹ 16.25

Reason:

Particulars	**Amount (₹)**	**Amount (₹)**
Raw material	1,20,00,000	
Add: Freight inwards	8,00,000	
Direct material:		1,28,00,000
Direct labour (wages)		1,80,00,000
Prime cost		**3,08,00,000**
Add: Factory overhead 30% of 3,08,00,000		92,40,000
Factory cost		**4,00,40,000**
Add: Office and administration overheads 20% of 4,00,40,000		80,08,000
Cost of production		**4,80,48,000**
Add: Selling and distribution overheads		1,69,52,000
Cost of sales		**6,50,00,000**
Add: Profit 30% of 6,50,00,000		1,95,00,000
Desirable sales		**8,45,00,000**

Cost of sales per metre = $\frac{₹\ 6,50,00,000}{40,00,000 \text{ metres}}$ = ₹ 16.25 per metre

2. Option (d) ₹ 6.25

Reason:

Loss element per metre on government supply

Cost of sales of khadi cloth per metre	**₹ 16.25**
Less: Supply rate to government per metre	(₹ 10)
Loss element per metre	₹ 6.25

3. Option (a) ₹ 29

Particulars	
Desirable sale as per cost sheet	₹ 8,45,00,000
Less: Amount at which supply is made to MP govt. (40,00,000 m x 40% x ₹ 10)	(₹ 1,60,00,000)
Amount to be recouped from general public	₹ 6,85,00,000
Units to be sold to general public	24,00,000 m
Selling price to general public $\frac{₹\ 6,85,00,000}{24,00,000\ m}$	₹ 28.5416

This will be rounded-off to Re. 1, so selling price will be ₹ 29 per metre.

4. Option (a) 22.313%

Reason:

Profit & loss account

Particulars	**Amount (₹)**	**Particulars**	**Amount (₹)**
To direct material	1,20,00,000	By sales (₹ 29 x 24,00,000 + 10 x 16,00,000)	8,56,00,000
To direct labour	1,80,00,000		
To freight inwards	8,00,000		
To factory overheads	89,50,000		

To office and administration	90,50,000		
To selling and distribution overhead	1,70,00,000		
To Donations	2,00,000		
To fines and penalties	5,00,000		
To profit	1,91,00,000		
Total	**8,56,00,000**	**Total**	**8,56,00,000**

Rate of return = $\frac{\text{Profit}}{\text{Sales}} = \frac{1,91,00,000}{8,56,00,000} = 22.313\%$

5. Option (d) ₹ 1,67,00,000

Reason:

Particulars	**Amount (₹)**
New sales (₹ 28 x 24,00,000 + ₹ 10 x 16,00,000)	8,32,00,000
Less: Total costs as per P&L made above	(6,65,00,000)
New profit	**1,67,00,000**

CASE SCENARIO 12

A manufacturing company has set the standard cost for producing one unit of its product as follows:

- Direct Material: 10 kg @ ₹ 5/kg
- Direct Labour: 4 hours @ ₹ 20/hour
- Variable Overhead: 4 hours @ ₹ 5/hour
- Fixed Overhead: ₹ 10 per unit (based on normal output of 5,000 units)

During a particular month, the company produced 4,800 units. The actual results were:

- Direct Material Used: 49,000 kg costing ₹ 2,45,000
- Direct Labour: 19,200 hours costing ₹ 3,84,000
- Variable Overhead Incurred: ₹ 95,000
- Fixed Overhead Incurred: ₹ 52,000

Based on this information, which of the following statements is most accurate?

MULTIPLE CHOICE QUESTIONS

(a) The material usage variance is ₹ 5,000 (Favourable)

(b) The labour rate variance is ₹ 19,200 (Adverse)

(c) The labour rate variance is ₹ 19,200 (Favourable)

(d) The fixed overhead volume variance is ₹ 2,000 (Adverse)

ANSWERS TO MULTIPLE CHOICE QUESTIONS

Option (d) The fixed overhead volume variance is ₹ 2,000 (Adverse)

Reason:

Material Usage Variance (MUV)

= (Standard Quantity - Actual Quantity) × Standard Price

= (48,000-49,000) × ₹ 5 = (-1,000) × ₹ 5 = ₹ 5,000 (Adverse)

Labour Rate Variance (LRV)

= (Standard Rate - Actual Rate) × Actual Hours

= (₹ 20 - ₹ 20) × 19,200 = ₹ 0

Fixed Overhead Volume Variance

= (Actual Output – Budgeted Output) × Standard FOH rate per unit

= (4,800 – 5,000) × ₹ 10 = ₹ 2,000 Adverse

CASE SCENARIO 13

SpeedX Automotive Pvt. Ltd. is a well-known manufacturer of automotive components focusing on producing high-quality fuel-efficient engine parts and transmission systems for both commercial and passenger vehicles. With a strong presence in the Indian market and an expanding footprint in Southeast Asia, SpeedX Automotive has established itself as a reliable supplier in the automotive industry. Headquartered in Pune, Maharashtra, the company is dedicated to meticulous cost management and strategic financial oversight, ensuring operational efficiency and profitability.

SpeedX Automotive Pvt. Ltd. allocates significant investments to direct costs, the lifeblood of their manufacturing process. The company spends ₹ 130,000 on purchasing direct materials, ensuring that the quality of raw materials meets their high standards. Direct labor, a critical component of their production, accounts for ₹ 90,000, reflecting their commitment to a skilled workforce. Additionally, direct expenses are managed at ₹ 30,000, covering various essential costs that directly impact their manufacturing operations.

Overhead costs are another crucial aspect of SpeedX Automotive's financial strategy. Factory overheads amount to ₹ 60,000, covering all indirect manufacturing expenses. Administration overheads are managed efficiently at ₹ 20,000. Selling and distribution overheads are maintained at ₹ 10,000, ensuring that products reach the market effectively. Quality control, vital for maintaining the company's reputation, is allocated ₹ 5,000, while ₹ 10,000 is dedicated to research and development, highlighting their focus on innovation.

Inventory management is key to SpeedX Automotive's financial health. The opening stock of raw materials stands at ₹ 50,000. The work-in-process inventory starts at ₹ 15,000 and is increased to ₹ 35,000, indicating a smooth production flow. For finished goods, the company maintains an opening stock worth ₹ 30,000, adjusted to a closing stock value of ₹ 25,000, showcasing their agile response to market demands.

Throughout the period, SpeedX Automotive's manufacturing expertise is evident as they successfully produce 4,000 units. Of these, 3,800 units are sold at a price of ₹ 100 per unit.

Additional Information:

During the period, the price of raw materials fluctuated. At the beginning of the period, the price was ₹ 10 per unit. Midway through the period, the price increased to ₹ 12 per unit. The company could only purchase 10,000 units at the lower price of ₹ 10 per unit. Raw material consumed was 14,000 units. Company follows FIFO method for inventory valuation.

Based on the above information, answer the following MCQs :

MULTIPLE CHOICE QUESTIONS

1. What is the value of closing stock of raw materials?
   (a) ₹ 35,000
   (b) ₹ 42,000
   (c) ₹ 40,000
   (d) ₹ 40,845
2. Calculate the cost of production.
   (a) ₹ 325,000
   (b) ₹ 315,000
   (c) ₹ 350,000
   (d) ₹ 370,000
3. What is the cost of goods sold?
   (a) ₹ 320,000
   (b) ₹ 335,000
   (c) ₹ 325,000
   (d) ₹ 345,000
4. Determine the cost of sales.
   (a) ₹ 350,000
   (b) ₹ 360,000

(c) ₹ 370,000

(d) ₹ 380,000

5. What is the cost per unit of goods sold if 3,800 units were sold?

(a) ₹ 91.11

(b) ₹ 94.74

(c) ₹ 84.21

(d) ₹ 97.45

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) ₹ 40,000

Reason:

Calculate units at each price:

Units at ₹ 10 per unit: 10,000 units

Cost for these units: ₹ 1,00,000

Remaining cost for units at ₹ 12 per unit: ₹ 130,000 - ₹ 100,000 = ₹ 30,000

Units at ₹ 12 per unit: $\frac{₹\ 30,000}{₹\ 12}$ = 2,500 units

Total units purchased: 10,000 + 2,500 = 12,500 units

Opening Stock: $\frac{₹\ 50,000}{₹\ 10}$ = 5,000 units

Total units available: 5,000 + 12,500 = 17,500 units

Units consumed in production: 14,000 units

Closing Stock Units: 17,500 - 14,000 = 3,500 units

Closing Stock Value (FIFO) = (2500 units at ₹ 12 + 1,000 units at ₹ 10)

= (2500 x ₹ 12) + (1,000 x ₹ 10) = ₹ 30,000 + ₹ 10,000 = ₹ 40,000

2. Option (b) ₹ 315,000

Reason:

Cost of Production = Prime Cost + Factory Overheads + Quality Control Costs + Research and Development Costs + Opening WIP – Closing WIP

Prime Cost = Direct Materials Consumed + Direct Labor + Direct Expenses

= (₹ 140,000 + ₹ 90,000 + ₹ 30,000) + ₹ 60,000 + ₹ 5,000 + ₹ 10,000 -

₹ 20,000 (WIP adjustment) = ₹ 315,000

3. Option (a) ₹ 320,000

Reason:

Cost of Goods Sold = Cost of Production + Opening Stock of Finished Goods - Closing Stock of Finished Goods

= ₹ 315,000 + ₹ 30,000 - ₹ 25,000 = ₹ 320,000

4. Option (a) ₹ 350,000

Reason:

Cost of Sales = Cost of Goods Sold + Administration Overheads + Selling and Distribution Overheads

= ₹ 320,000 + ₹ 20,000 + ₹ 10,000 = ₹ 350,000

5. Option (c) ₹ 84.21

Reason:

Cost per Unit of Goods Sold = Cost of Goods Sold / Units Sold

= ₹ 320,000 / 3,800 units = ₹ 84.21

CASE SCENARIO 14

Valley Ltd., a medium-sized manufacturing firm, is reviewing its operational strategy for Q2 of 2025 due to an anticipated rise in market demand for its signature product, 'X'—a pre-packaged consumer item. To maintain profitability and manage costs efficiently, the management team is preparing a detailed budget.

The following information are made available for this purpose:

(a) It expects to sell 50,000 bags of 'X' during the second quarter of 2025 at the selling price of ₹ 9 per bag.

(b) Each bag of 'X' requires 2.5 kgs. of a raw – material called 'Y' and 7.5 kgs. of raw – material called 'Z'.

(c) 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

(d) 'Y' cost ₹ 1.20 per Kg., 'Z' costs 20 paise per Kg. and 'Empty Bag' costs 80 paise each.

(e) It requires 9 minutes of direct labour to produce and fill one bag of 'X'. Labour cost is

(f) ₹ 5 per hour.

(g) Variable manufacturing costs are ₹ 0.45 bag. Fixed manufacturing costs ₹ 30,000 per quarter.

(h) Variable selling and administration expenses are 5% of sales and fixed administration and selling expenses are ₹ 25,000 per quarter.

As part of the budgeting exercise, management is looking for clarity on production needs, raw material purchases, cost per unit, and profitability to support strategic decisions and investor confidence.

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

MULTIPLE CHOICE QUESTIONS

1. The required production of "X" in second quarter will be:
   (a) 45,000 bags
   (b) 46,000 bags
   (c) 61,000 bags
   (d) 50,000 bags
2. What is the quantity to be purchased for 'Y', 'Z' and 'Empty bags'?
   (a) 1,41,000, 3,92,000 and 74,000
   (b) 1,15,000, 3,45,000 and 46,000
   (c) 1,30,800, 67,000 and 26,600
   (d) 1,09,000, 3,35,000 and 37,000
3. What is the cost of quantity purchased for 'Y', 'Z' and 'Empty bags'
   (a) 1,30,800, 67,000 and 29,600
   (b) 1,09,000, 3,35,000 and 37,000
   (c) 1,41,000, 3,92,000 and 74,000
   (d) 1,15,000, 3,45,000 and 46,000
4. What is the budgeted variable cost of producing one bag of 'X'.
   (a) ₹ 5.50
   (b) ₹ 4.75
   (c) ₹ 6.50
   (d) ₹ 6.05

5. What is the Budgeted Net Income for the Second Quarter

(a) ₹ 30,000

(b) ₹ 1,25,000

(c) ₹ 75,000

(d) ₹ 47,500

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) 46,000 bags

2. Option (d) 1,09,000, 3,35,000 and 37,000

3. Option (a) 1,30,800, 67,000 and 29,600

4. Option (c) ₹ 6.50

5. Option (d) ₹ 47,500

Reason:

Working Note:

(i) Production Budget of 'X' for the Second 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	₹ 1.20	₹ 0.20	₹ 0.80
Cost of Purchase (₹)	1,30,800	67,000	29,600

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

Particulars	**(₹)**
Raw – Material	
Y 2.5 Kg @1.20	3.00
Z 7.5 Kg. @0.20	1.50
Empty Bag	0.80
Direct Labour (₹ 5 × 9 minutes / 60 minutes)	0.75
Variable Manufacturing Overheads	0.45
Variable Cost of Production *per bag*	6.50

(iv) Budgeted Net Income for the Second Quarter

Particulars	**Per Bag (₹)**	**Total (₹)**
Sales Value (50,000 Bags)	9.00	4,50,000
Less: Variable Cost:		
Production Cost	6.50	3,25,000
Admn. & Selling Expenses (5% of Sales Price)	0.45	22,500
Budgeted Contribution	2.05	1,02,500
Less: Fixed Expenses:		
Manufacturing		30,000
Admn. & Selling		25,000
Budgeted Net Income		47,500

CASE SCENARIO 15

Mr. Ben is paid higher wages than Mr. Akon. Though their normal wage rate is same, Mr. Ben gets higher payment as under Halsey system than that to

Mr. Akon as under Rowan System.

The total time allowed to make the same product is 75 hours, however, Mr. Ben takes 60 hours while Mr. Akon takes 45 hours.

The production of the product also involve other costs that are not traced directly to the product like salary to quality assurance manager, factory rent, supplies, salary to production supervisor, electricity consumed, etc. which comes to ₹ 2,26,800 leading to factory overhead rate being ₹ 120 per man-hour actually worked.

The total factory cost for the product produced by Mr. Akon comes to ₹ 1,25,640 and by Mr. Ben comes to ₹ 1,29,600.

From the information given above, COMPUTE the normal wage rate along with the cost of material.

(a) Normal wage rate- ₹ 63 per hour and cost of material- ₹ 1,20,240

(b) Normal wage rate- ₹ 67.5 per hour and cost of material- ₹ 1,22,400

(c) Normal wage rate- ₹ 480 per hour and cost of material- ₹ 90,000

(d) Normal wage rate- ₹ 450 per hour and cost of material- ₹ 87,840

ANSWERS TO MULTIPLE CHOICE QUESTIONS

Option (c) Normal wage rate- ₹ 480 per hour and cost of material- ₹ 90,000

Reason:

Let X be the cost of material and Y be the normal rate of wages per hour.

Factory Cost of Mr. Akon (Rowan System) $= X + 45Y + \frac{45}{75} \times (75 - 45)\ Y +$ (45 x ₹ 120)

₹ 1,25,640 $= X + 63Y +$ ₹ 5,400

X + 63Y	= ₹ 1,20,240	... (i)
Factory Cost of Mr. Ben (Halsey System)	= X + 60Y + 50% (75 - 60) Y + (60 x ₹ 120)	
₹ 1,29,600	= X + 67.5Y + ₹ 7,200	
X + 67.5Y	= ₹ 1,22,400	... (ii)

From subtracting (i) from (ii), we get,

4.5Y = ₹ 2,160

Y = ₹ 480 per hour

Or, **normal wage rate = ₹ 480 per hour**

Therefore, X = ₹ 1,20,240 - 63Y

X = ₹ 1,20,240 - (63 x ₹ 480)

X = ₹ 90,000

Or, **cost of material = ₹ 90,000**

CASE SCENARIO 16

The loan department of a bank is responsible for several functions, including processing home loan applications, managing customer inquiries, and overseeing loan approvals. After careful analysis, it has been estimated that 30% of the department's total overhead costs such as legal advice, telephone expenses, staff salaries, etc. are directly related to the processing of home loan applications, though only 480 home loan applications are processed each month. The following information is given concerning the processing of a loan application:

Particulars	**(₹)**
Home Loan processors monthly salary:	
(16 employees @ ₹ 94,500 each)	15,12,000
Loan department overhead costs (monthly)	
Chief loan officer's salary	4,72,500
Telephone expenses	47,250
Depreciation Building	1,76,400
Legal advice	1,51,200
Advertising	2,52,000
Miscellaneous	40,950
Total overhead costs	11,40,300

MULTIPLE CHOICE QUESTIONS

1. COMPUTE processing cost per home loan application.

   (a) ₹ 2,375.63

   (b) ₹ 3,150.00

   (c) ₹ 3,862.69

   (d) ₹ 5,525.63

ANSWERS TO MULTIPLE CHOICE QUESTIONS

Option (c) ₹ 3,862.69

Reason:

Statement showing computation of the cost of processing a home loan application

Particulars	(₹)
Direct professional labour cost (16 employees @ ₹ 94,500 each)	15,12,000
Service overhead cost (30% of ₹ 11,40,300)	3,42,090
Total processing cost per month	18,54,090
No. of applications processed per month	480
Total processing cost per home loan application	3,862.69

CASE SCENARIO 17

ZEN Manufacturing Pvt. Ltd., headquartered in Pune, Maharashtra, is a mid-sized but rapidly growing enterprise specializing in the production of precision-engineered automobile components tailored specifically for the electric vehicle (EV) industry. With India's EV segment witnessing exponential growth driven by sustainability goals and government incentives, ZEN has emerged as a trusted Tier-2 supplier to some of the country's leading electric vehicle manufacturers.

The company operates with a mission to deliver high-quality, durable, and technologically advanced components that meet stringent safety and efficiency standards. Its operations encompass R&D, material procurement, in-house manufacturing, and logistics support — all backed by a strong team of engineers, production planners, and administrative personnel.

With a focus on continuous process improvement and cost competitiveness, ZEN undertakes annual internal cost audits to evaluate operational efficiency, identify cost leakages, and support strategic decision-making. As part of this year's financial review for the period ending 31st March, 2025, the company has appointed you, a newly hired Cost Consultant, to analyze its cost performance, prepare a comprehensive cost sheet, and evaluate the profitability of its operations based on the financial data provided.

Particulars	Amount (₹)
Purchase of raw materials	96,50,000
Consumable materials used	5,25,000
Direct labour wages	72,80,000
Freight and carriage inward	2,15,000
Wages to floor supervisors and store assistants	9,60,000
Indirect wages to factory staff	1,75,000
R&D expenses related to enhancing production methods	11,20,000
Salaries to accounts and admin staff	8,50,000
Penalty paid for the late payment of interest	80,000
Employer's contribution to EPF & ESI	8,00,000

Electricity and fuel used in production	30,50,000
Production scheduling & planning office expenses	13,50,000
Delivery personnel salaries	15,20,000
Income tax for AY 2024-25	3,10,000
Statutory audit fees	2,20,000
Cost audit fees	95,000
Honorarium to independent board members	10,50,000
Contribution to disaster relief fund	1,40,000
Total Value of Sales	3,12,80,000

Inventory details:

Particulars	As on 01-04-2024 (₹)	As on 31-03-2025 (₹)
Raw Materials	7,10,000	5,40,000
Work-in-Progress	8,50,000	7,25,000
Finished Goods	16,20,000	11,80,000

Based on the above information, as a Cost Consultant you are required to answer the following 5 MCQs:

MULTIPLE CHOICE QUESTIONS

1. What is the Prime Cost of ZEN Manufacturing Pvt. Ltd. for the year ended 31st March 2025?

   (a) ₹ 2,16,90,000

   (b) ₹ 2,18,90,000

   (c) ₹ 2,13,10,000

   (d) ₹ 2,09,60,000

2. What is the Factory Cost of ZEN Manufacturing Pvt. Ltd.?

   (a) ₹ 2,29,50,000

   (b) ₹ 2,28,25,000

   (c) ₹ 2,54,20,000

(d) ₹ 2,16,90,000

3. What is the Cost of Production of ZEN Manufacturing Pvt. Ltd?

(a) ₹ 2,28,25,000

(b) ₹ 2,29,50,000

(c) ₹ 2,54,20,000

(s) ₹ 2,13,10,000

4. What is the Cost of Goods Sold (COGS) for ZEN Manufacturing Pvt. Ltd. in FY 2024-25?

(a) ₹ 2,54,20,000

(b) ₹ 2,58,60,000

(c) ₹ 2,95,95,000

(d) ₹ 3,12,80,000

5. What is the Net Profit for ZEN Manufacturing Pvt. Ltd.?

(a) ₹ 22,15,000

(b) ₹ 16,85,000

(c) ₹ 19,20,000

(d) ₹ 2,95,95,000

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ₹ 2,16,90,000

2. Option (a) ₹ 2,29,50,000

3. Option (c) ₹ 2,54,20,000

4. Option (b) ₹ 2,58,60,000

5. Option (b) ₹ 16,85,000

Reason:

Working Note:

Sl. No.	Particulars	Amount (₹)	Amount (₹)
(i)	Material Consumed:		
	- Raw materials purchased	96,50,000	
	- Carriage inward	2,15,000	
	Add: Opening stock of raw materials	7,10,000	
	Less: Closing stock of raw materials	(5,40,000)	1,00,35,000
(ii)	Direct employee (labour) cost:		
	- Direct wages	72,80,000	
	- Employer's Contribution towards PF & ESIS	8,00,000	80,80,000
(iii)	Direct expenses:		
	- Consumable materials	5,25,000	
	- Electricity & fuel	30,50,000	35,75,000
	Prime Cost		2,16,90,000
(iv)	Works/ Factory overheads:		
	- Wages to floor supervisors and store assistants	9,60,000	
	- Other indirect wages to factory staffs	1,75,000	11,35,000
	Gross factory cost		2,28,25,000
	Add: Opening value of W-I-P		8,50,000
	Less: Closing value of W-I-P		(7,25,000)
	Factory Cost		2,29,50,000
(v)	Research & development cost paid for improvement in production process		11,20,000
(vi)	Production planning office expenses		13,50,000

	Cost of Production		2,54,20,000
	Add: Opening stock of finished goods		16,20,000
	Less: Closing stock of finished goods		(11,80,000)
	Cost of Goods Sold		2,58,60,000
(vii)	Administrative overheads:		
	- Salary to accountants	8,50,000	
	- Fees to statutory auditor	2,20,000	
	- Fees to cost auditor	95,000	
	- Fee paid to independent directors	10,50,000	22,15,000
(viii)	Selling overheads & Distribution overheads:		
	- Salary to delivery staffs		15,20,000
	Cost of Sales		2,95,95,000
	Profit (balancing figure)		16,85,000
	Sales		3,12,80,000

Note: Income tax for AY 2024-25, Penalty paid for the late payment of interest and Contribution to disaster relief fund are avoided in cost sheet

CASE SCENARIO 18

SunBright Appliances Ltd., founded in 2005, is a growing Indian manufacturer of three types of home appliances: Air Conditioners (ACs), Washing Machines (WMs), and Refrigerators (RFs). The company has built a reputation for quality and durability in the mid-range market segment and has seen stable demand across urban and semi-urban markets. In recent years, it has invested in modernizing its production facilities with semi-automated machinery and upgraded ERP systems to support cost control and performance monitoring.

SunBright is currently facing a multi-dimensional challenge:

- Increasing input costs (particularly raw materials and electricity)
- Intense competition from both multinational brands and low-cost domestic players
- Demand fluctuation due to seasonal sales cycles and changing consumer preferences
- Pressure on profit margins, especially in the washing machine segment
- Sustainability targets and pressure to reduce carbon footprint by optimizing energy usage and waste

To stay competitive, the board has asked the finance and operations teams to assess:

- Cost structures and process efficiencies
- Profitability by product line
- Feasibility of accepting foreign bulk orders
- Operational variances impacting budgets and performance

Following data is available for the quarter:

Particulars	ACs	WMs	RFs
Units Produced	5,000	6,000	4,000
Units Sold	5,000	6,000	4,000
Direct Material Cost per Unit	₹ 7,500	₹ 5,000	₹ 6,000

Direct Labour Hours per Unit	6 hrs	4 hrs	5 hrs
Direct Labour Rate	₹ 250/hr	₹ 250/hr	₹ 250/hr
Selling Price per Unit	₹ 18,000	₹ 14,000	₹ 16,000
Standard Labour Hours	5.5 hrs	3.5 hrs	5.5 hrs

Overhead Costs for the Quarter:

Activity	Total Overhead (₹)	Cost Driver	Driver Quantity (Total)
Machine Setups	9,00,000	No. of setups	180 setups
Quality Inspections	6,00,000	No. of inspections	300 inspections
Material Handling	7,50,000	No. of material moves	500 moves
Utilities & Maintenance	15,00,000	Machine hours	30,000 machine hours

Activity Driver Consumption:

Product	Setups	Inspections	Material Moves	Machine Hours
ACs	60	90	200	12,000
WMs	70	100	150	10,000
RFs	50	110	150	8,000

SunBright also received a special order from a foreign buyer for 500 WMs at

₹ 12,000 each. This order requires an Additional packaging cost of ₹ 150/unit. However, no marketing costs will be incurred. Also, it can only be accepted fully.

Budgeted overhead of the company is ₹ 37,00,000.

On the basis of above information and requirements of the board, you are required to answer the following questions:

MULTIPLE CHOICE QUESTIONS

1. What is the total product cost per unit using Activity-Based Costing for ACs, WMs, RFs respectively?

   (a) ACs – ₹ 9,276.00, WMs – ₹ 6,212.50, RFs – ₹ 7,523.75

   (b) ACs – ₹ 9,560.50, WMs – ₹ 6,500.00, RFs – ₹ 7,800.00

(c) ACs – ₹ 9,000.00, WMs – ₹ 6,065.55, RFs – ₹ 7,223.75

(d) ACs – ₹ 8,800.00, WMs – ₹ 6,100.00, RFs – ₹ 7,300.00

2. What is the profit per unit and total profit for ACs, WMs, RFs respectively?

(a) Profit/unit: ACs – ₹ 8,500.00, WMs – ₹ 7,500.00, RFs – ₹ 8,000.00;

Total Profit: ACs – ₹ 4,25,00,000, WMs – ₹ 4,50,00,000, RFs – ₹ 3,20,00,000

(b) Profit/unit: ACs – ₹ 8,724.00, WMs – ₹ 7,787.50, RFs – ₹ 8,476.25;

Total Profit: ACs – ₹ 4,36,20,000, WMs – ₹ 4,67,25,000, RFs – ₹ 3,39,05,000

(c) Profit/unit: ACs – ₹ 8,250.00, WMs – ₹ 7,250.00, RFs – ₹ 8,100.00;

Total Profit: ACs – ₹ 4,12,50,000, WMs – ₹ 4,35,00,000, RFs – ₹ 3,24,00,000

(d) Profit/unit: ACs – ₹ 8,000.00, WMs – ₹ 7,000.00, RFs – ₹ 7,800.00;

Total Profit: ACs – ₹ 4,00,00,000, WMs – ₹ 4,20,00,000, RFs – ₹ 3,12,00,000

3. Calculate Total Labour Efficiency Variance and Labour Rate Variance.

(a) Labour Efficiency Variance: ₹ 5,00,000 (Favorable), Labour Rate Variance: ₹ 0

(b) Labour Efficiency Variance: ₹ 7,50,000 (Adverse), Labour Rate Variance: ₹ 1,00,000 (Favorable)

(c) Labour Efficiency Variance: ₹ 8,75,000 (Adverse), Labour Rate Variance: ₹ 0

(d) Labour Efficiency Variance: ₹ 6,25,000 (Adverse), Labour Rate Variance: ₹ 2,50,000 (Adverse)

4. If it has idle capacity of only 200 WMs assuming 50% overheads is variable. Should the company accept the foreign order along with reason?

(a) Yes, because the offer price is above variable cost and no capacity issue exists

(b) Yes, because accepting the full order causes a net profit of ₹ 5,03,750

(c) No, because idle capacity is not sufficient for full order.

(d) No, because accepting the full order causes a loss of ₹ 11,87,500 due to opportunity cost of reduced regular production

5. What is the Total Overhead Variance?

(a) ₹ 25,000 (Favorable)

(b) ₹ 0

(c) ₹ 37,50,000 (Adverse)

(d) ₹ 50,000 (Adverse)

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ACs – ₹ 9,276.00, WMs – ₹ 6,212.50, RFs – ₹ 7,523.75

Reason:

Statement Showing "Cost *per unit* - Activity Based Costing"

Product	ACs (₹)	WMs (₹)	RFs (₹)
Material	7,500	5,000	6,000
Labour Hours	6	4	5
Labour Rate/hr	250	250	250
Labour	1,500	1,000	1,250
Overhead (W.N.)	276.00	212.50	273.75
Total Cost	9,276.00	6,212.50	7,523.75

Working Notes

Cost for each activity cost driver

Activity	Total Cost (₹)	No. of Activity Driver	Activity Rate (₹)
Machine Setups	9,00,000	180 setups	5,000/setup
Quality Inspections	6,00,000	300 inspections	2,000/inspection

Material Handling	7,50,000	500 moves	1,500/move
Utilities & Maint.	15,00,000	30,000 hrs	50/machine hour

Overhead Cost per Unit

Product	ACs (₹)	WMs (₹)	RFs (₹)
Setups	60 x 5,000 = 3,00,000	70 x 5,000 = 3,50,000	50 x 5,000 = 2,50,000
Inspections	90 x 2,000 = 1,80,000	100 x 2,000 2,00,000	110 x 2,000 = 2,20,000
Material Handling	200 x 1,500 = 3,00,000	150 x 1,500 = 2,25,000	150 x 1,500 = 2,25,000
Utilities & Maintenance	12,000 x 50 = 6,00,000	10,000 x 50 = 5,00,000	8,000 x 50 = 400,000
Total Overhead	13,80,000	12,75,000	10,95,000
Units Produced	5,000	6,000	4,000
Overhead per Unit	276.00	212.50	273.75

2. **Option (b)** Profit/unit: ACs – ₹ 8,724.00, WMs – ₹ 7,787.50, RFs – ₹ 8,476.25;

Reason:

Total Profit: ACs – ₹ 4,36,20,000, WMs – ₹ 4,67,25,000, RFs – ₹ 3,39,05,000

Calculation of Profit per Unit and Total Profit

Product	ACs (₹)	WMs (₹)	RFs (₹)
Selling Price	18,000.0	14,000.0	16,000.0
Cost	9,276.0	6,212.5	7,523.75
Profit per Unit	8,724.0	7,787.5	8,476.25
Units Sold	5,000	6,000	4,000
Total Profit	4,36,20,000	4,67,25,000	3,39,05,000

3. **Option (c)** Labour Efficiency Variance: ₹ 8,75,000 (Adverse), Labour Rate Variance: ₹ 0

Reason:

Standard Labour Cost

Product	ACs	WMs	RFs
Standard Hours per unit	5.5 hrs	3.5 hrs	5.5 hrs
Rate (₹)	250	250	250
Units	5,000	6,000	4,000
Total Std Hours	27,500	21,000	22,000

Total Actual Labour Cost

Product	ACs	WMs	RFs
Actual Hours per unit	6 hrs	4 hrs	5 hrs
Units	5,000	6,000	4,000
Actual Hours	30,000	24,000	20,000

Labour Efficiency Variance

= (Standard Hours – Actual Hours) × Standard Rate

ACs = (27,500 – 30,000) × 250 = ₹ 6,25,000 (A)

WMs = (21,000 – 24,000) × 250 = ₹ 7,50,000 (A)

RFs = (22,000 – 20,000) × 250 = ₹ 5,00,000 (F)

Total Labour Efficiency Variance = ₹ 8,75,000 (A)

Labour Rate Variance

= (Standard Rate – Actual Rate) × Actual Hours

Standard and Actual Rate = ₹ 250

Labour Rate Variance = ₹ 0

4. **Option (b)** Yes, because accepting the full order causes a net profit of ₹ 5,03,750

Reason:

The incremental costs associated with the order must be considered to decide whether to accept it.

- Offered Price per WM: ₹ 12,000
- Direct Material Cost per WM: ₹ 5,000
- Direct Labour Cost per WM: ₹ 1,000
- Additional Packaging Cost per WM: ₹ 150

Because the company has idle capacity of 200 WMs, and only 50% of the overheads are variable, the remaining 50% are fixed and will not be impacted by the special order. The variable portion of the overheads for WMs is: ₹ 212.50 x 0.50 = ₹ 106.25 per unit.

- Incremental Cost per WM: 5,000 + 1,000 + 150 + 106.25 = ₹ 6,256.25
- Incremental Profit per WM: ₹ 12,000 - ₹ 6,256.25 = ₹ 5,743.75

The order requires 500 WMs, but the company only has idle capacity for 200. It must be accepted fully, implying that the company would need to reduce regular production by 300 units to fulfill the remaining 300 units of the order. SunBright would lose out on the profit of these 300 units if they accept the order.

- Profit on 200 units (idle capacity): 200 x ₹ 5,743.75 = ₹ 11,48,750
- Opportunity cost on 300 units (diverted from regular production):

  = 300 x {(14,000-12,000) + 150}

  = ₹ 6,45,000

  Net profit on accepting the order = ₹ 5,03,750

  Accepting the entire order would result in a net profit of ₹ 5,03,750. Therefore, the company should accept the foreign order.

5. Option (d) ₹ 50,000 (Adverse)

Reason:

Total Actual Overheads = ₹ 9,00,000 + ₹ 6,00,000 + ₹ 7,50,000 + ₹ 15,00,000

= ₹ 37,50,000

Budgeted Overheads = ₹ 37,00,000

Overhead Variance = Actual Overheads - Budgeted Overheads

= ₹ 37,50,000 - ₹ 37,00,000 = ₹ 50,000 (Adverse)

CASE SCENARIO 19

'Axe Trade', an unregistered supplier under GST, purchased material from Vye Ltd. which is registered supplier under GST. During the month of June 2024, the Axe Traders has purchased a lot of 5,000 units on credit from Vye Ltd. The information related to the purchase are as follows:

Listed price of one lot of 5,000 units	- ₹ 2,50,000
Trade discount	- @ 10% on listed price
CGST and SGST (Credit available)	- 18% (9% CGST + 9% SGST)
Cash discount	- @ 10%
(Will be given only if payment is made within 30 days.)	
Toll Tax paid	₹ 5,000
Freight and Insurance	₹ 17,220
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

A 20% shortage in material on receipt is expected considering the nature of the raw material.

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

You are require the answer the following questions:

MULTIPLE CHOICE QUESTIONS

1. If Axe Traders pays the supplier within 30 days of purchase, then, what is the total amount of cash discount received from the supplier and how it is treated to calculate material cost?

   (a) ₹ 25,000 & it will not be deducted from the material cost

(b) ₹ 26,550 & it will be deducted from the material cost

(c) ₹ 26,550 & it will not be deducted from the material cost

(d) ₹ 22,500 & it will not be deducted from the material cost

2. What will be the amount of other expenses and how it is treated in material cost?

(a) ₹ 6,154.40 & it will be added with the material cost

(b) ₹ 6,280.00 & it will be added with the material cost

(c) ₹ 5,344.40 & it will be added with the material cost

(d) ₹ 5,453.47 & it will not be added with the material cost

3. What is the amount of GST and how will it be treated in cost sheet of Axe Traders?

(a) ₹ 40,500 & it will not be added with material cost

(b) ₹ 40,500 & it will be added with material cost

(c) ₹ 45,000 & it will not be added with material cost

(d) ₹ 45,000 & it will be added with material cost

4. What is the total material cost chargeable in the cost sheet of Axe Traders?

(a) ₹ 3,14,000

(b) ₹ 2,73,500

(c) ₹ 2,72,673

(d) ₹ 3,13,874

5. The number of good units and cost per unit of the materials received are:

(a) 5,000 units & ₹ 62.80

(b) 5,000 units & ₹ 54.70

(c) 4,000 units & ₹ 78.50

(d) 4,000 units & ₹ 68.38

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) ₹ 22,500 & it will not be deducted from the material cost

Cash discount is received when credit amount is paid within the stipulated period of 30 days. The amount of cash discount to be received from the supplier is:

	Particulars	Amount (₹)
A.	Listed price	2,50,000
B.	Less: Trade Discount @10%	(25,000)
C.	Taxable value (A-B)	2.25,000
D.	Add: GST@18% (18% of C)	40,500
E.	Total amount payable to the supplier	2,65,500
F.	Cash discount @10% (10% of C)	**(22,500)**
G.	Net amount to be paid to the supplier (E-F)	2,43,000

2. Option (b) ₹ 6,280.00 & it will be added with the material cost

Reason:

Particulars	Units	(₹)
Listed Price of Materials	5,000	2,50,000
Less: Trade discount @ 10% on invoice price		(25,000)
		2,25,000
Add: GST @ 18% of ₹ 2,25,000		40,500
		2,65,500
Add: Toll Tax		5,000
Freight and Insurance		17,220
Commission and Brokerage Paid		10,000
Add: Cost of returnable containers: Amount deposited ₹ 30,000 Less: Amount refunded ₹ 20,000		10,000
		3,07,720

Add: Other Expenses @ 2% of Total Cost $\left(\frac{₹\ 3,07,720}{98} \times 2\right)$		6,280
Total cost of material		3,14,000
Less: Shortage material due to normal reasons @ 20%	1,000	-
Total cost of material of good units	4,000	3,14,000
Cost per unit (₹ 3,14,000/4,000 units)		78.5

3. **Option (b)** ₹ 40,500 & it will be added with material cost

Reason:

Axe Traders is an unregistered supplier in the GST; thus, GST credit is not applicable for it. GST paid on the purchase of the material will be the part of the material cost.

4. **Option (a)** Please refer the solution above

5. **Option (c)** Please refer the solution above

CASE SCENARIO 20

ABC Pvt Ltd is engaged in the manufacture of a Product Q. The product has the following standard production requirements determined by the technical team of the company post satisfactory completion of test run.

Raw Material Z – 2 units @ ₹ 2 per unit

Skilled labour of – 2.5 hours@ ₹ 5 per hour

Fixed Overheads – ₹ 7.5 per unit

The input of Raw material Z has a yield of 80% everytime when infused into production. The actual quantity of Raw material Z consumed for production during the year was 24,000 units. The Usage variance of Material Z was 2,000 Favourable. Further the actual amount of material cost for the material consumed amounted to ₹ 45,000.

During the said year, the actual working hours were 30,000 for which the labour cost paid by the company amounted to ₹ 1,20,000. The idle time variance amounted to 10,000 Adverse.

The actual fixed overheads incurred for the year amounted to ₹ 1,50,000 and the expenditure variance was ₹ 25,000 Favourable.

In the context of the above, the following needs to be determined:

MULTIPLE CHOICE QUESTIONS

1. The Actual output of Product Q produced during the year is:
   (a) 10,000 units
   (b) 12,500 units
   (c) 25,000 units
   (d) 15,000 units
2. The Material price and material cost variance are:
   (a) Price variance – 3,000 Adverse, Cost Variance – 5,000 Adverse
   (b) Price variance – 3,000 Favourable, Cost Variance – 5,000 Favourable

(c) Price variance – 3,000 Favourable, Cost Variance – 8,000 Adverse

(d) Price variance – 5,000 Adverse, Cost Variance – 3,000 Favourable

3. The Standard Hours, Net Actual hours and the idle time are:

(a) Standard Hours – 27,500 Net Actual Hours – 28,000 hours Idle Time – 2,000 hours

(b) Standard Hours – 22,500 Net Actual Hours – 28,500 hours Idle Time – 1,500 hours

(c) Standard Hours – 24,000 Net Actual Hours – 29,000 hours Idle Time – 1,000 hours

(d) Standard Hours – 25,000 hours Net Actual Hours –28,000 hours Idle Time – 2,000 hours

4. Labour Efficiency variance and Labour rate variance are:

(a) Labour Efficiency Variance – 30,000 Favourable Labour rate Variance – 25,000 Adverse

(b) Labour Efficiency Variance – 25,000 Favourable, Labour rate Variance – 30,000 Adverse

(c) Labour Efficiency Variance – 25,000 Adverse, Labour rate Variance – 30,000 Favourable

(d) Labour Efficiency Variance – 30,000 Adverse Labour rate Variance – 25,000 Favourable

5. Fixed Overhead volume variance is:

(a) Fixed Overhead volume variance – 1,00,000 Favourable

(b) Fixed Overhead volume variance – 50,000 Adverse

(c) Fixed Overhead volume variance – 1,00,000 Adverse

(d) Fixed Overhead volume variance – 50,000 Favourable

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. **Option (a)** 10,000 units

Reason:

Usage variance of Material Z	= 2,000 F
Usage Variance	= SQ x SP – AQ x SP
SP	= ₹ 2
AQ	= 24,000 units
2 x (SQ – 24,000)	= 2,000
2SQ	= 50,000
Therefore SQ	= 25,000
No of units of Input required per output	= 2
Yield of input	= 80%
= (25,000/2) x 80%	= 10,000 units.

2. **Option (b)** Price variance – 3,000 Favourable, Cost Variance – 5,000 Favourable

Reason:

Price variance – 3,000 Favourable,

Cost Variance – 5,000 Favourable

Price variance	= AQ x (SP-AP)
24,000 x (2-1.875)	= 3,000 Favourable.
Cost variance	= SQ x SP – AQ x AP
	= 50,000–45,000=5,000 Favourable.

3. **Option (d)** Standard Hours – 25,000 hours Net Actual Hours –28,000 hours Idle Time – 2,000 hours

Reason:

Standard Hours – 25,000 hours Net Actual Hours – 28,000 hours Idle Time – 2,000 hours

Actual output	= 10,000 units
Standard hours per unit	= 2.5
Therefore standard hours	= 10,000 x 2.5 = 25,000 hours.
Idle time variance	= SR x (Net AH – AH)
5 x (Net AH – 30,000)	= 10,000 Adverse
5 Net AH – 1,50,000	= -10,000
5 Net AH	= 1,40,000
Net AH	= 28,000 hours
Idle time	= 2,000 hours

4. **Option (c)** Labour Efficiency Variance – 25,000 Adverse, Labour rate Variance – 30,000 Favourable

Reason:

Labour Efficiency Variance	– 25,000 Adverse,
Labour rate Variance	– 30,000 Favourable
Efficiency Variance	= SR x (SH-AH)
	= 5 x (25,000 – 30,000)
	= 25,000 Adverse
Rate Variance	= AH x (SR – AR)
	= 30,000 (5 – 4) [1,20,000/30,000]
	= 30,000 Favourable.

5. **Option (c)** Fixed Overhead volume variance – 1,00,000 Adverse

Reason:

Fixed Overhead Volume variance – 1,00,000 Adverse

Overhead Volume variance	= Actual Output x SR per unit – Budgeted FOH
Budgeted FOH	= Actual FOH (+/-) Expenditure variance
1,50,000 + 25,000	= 1,75,000
AO x SR	= 10,000 x 7.5 = 75,000
Therefore volume variance	= 75,000 – 1,75,000
	=1,00,000 Adverse.

CASE SCENARIO 21

Raja Ltd manufactures and sells a single product and has estimated sales revenue of ₹ 302.4 lakh during the year based on 20% profit on selling price. Each unit of product requires 6 kg of material A and 3 kg of material B and processing time of 4 hours in machine shop and 2 hours in assembly shop. Factory overheads are absorbed at a blanket rate of 20% of direct labour. Variable selling & distribution overheads are ₹ 60 per unit sold and fixed selling & distribution overheads are estimated to be ₹ 69,12,000.

The other relevant details are as under:

Purchase Price:	Material A Materials B	₹ 160 per kg ₹ 100 per kg	
Labour Rate:	Machine Shop Assembly Shop	₹ 140 per hour ₹ 70 per hour	
	Finished Stock	**Material A**	**Material B**
Opening Stock	2,500 units	7,500 kg	4,000 kg
Closing Stock	3,000 units	8,000 kg	5,500 kg

You are required to answer the following questions:

MULTIPLE CHOICE QUESTIONS

1. What is the total variable cost for the year?
   (a) ₹ 165.6 lakh
   (b) ₹ 172.8 lakh
   (c) ₹ 180.0 lakh
   (d) ₹ 241.92 lakh
2. What is the variable cost per unit of the product?
   (a) ₹ 2,040
   (b) ₹ 2,100

(c) ₹2,160

(d) ₹2,220

3. Calculate t he number of units of product proposed to be sold, and what is the selling price per unit?

(a) 7,500 units @ ₹4,000

(b) 8,000 units @ ₹3,780

(c) 8,500 units @ ₹3,600

(d) 9,000 units @ ₹3,500

4. How many units should Raja Ltd produce during the year?

(a) 8,000 units

(b) 7,500 units

(c) 9,000 units

(d) 8,500 units

5. What quantities of Material A and Material B should be purchased respectively?

(a) 51,000 kg and 25,500 kg

(b) 51,500 kg and 27,000 kg

(c) 49,500 kg and 26,000 kg

(d) 52,000 kg and 28,500 kg

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) ₹ 172.8 lakh

Reason:

Statement Showing "Total Variable Cost for the year"

Particulars	Amount (₹)
Estimated Sales Revenue	3,02,40,000
Less: Desired Profit Margin on Sale @ 20%	60,48,000

Estimated Total Cost	2,41,92,000
Less: Fixed Selling and Distribution Overheads	69,12,000
Total Variable Cost	1,72,80,000

2. Option (c) ₹ 2,160

Reason:

Statement Showing "Variable Cost per unit"

Particulars	**Variable Cost p.u. (₹)**
Direct Materials:	
A: 6 Kg. @ ₹ 160 per kg.	960
B: 3 Kg. @ ₹ 100 per kg.	300
Labour Cost:	
Machine Shop: 4 hrs @ ₹ 140 per hour	560
Assembly Shop: 2 hrs @ ₹ 70 per hour	140
Factory Overheads: 20% of (₹ 560 + ₹ 140)	140
Variable Selling & Distribution Expenses	60
Total Variable Cost per unit	2,160

3. Option (b) 8,000 units @ ₹3,780

Reason:

Calculation of number of units of product proposed to be sold and selling price per unit:

Number of Units Sold = Total Variable Cost/Variable Cost per unit

= ₹ 1,72,80,000 / ₹ 2,160

= 8,000 units

Selling Price per unit = Total Sales Value / Number of Units Sold

= ₹ 3,02,40,000 / 8,000 units

= ₹ 3,780

4. **Option (d)** 8,500 units

Production Budget (units)

Particulars	Units
Budgeted Sales	8,000
Add: Closing Stock	3,000
Total Requirements	11,000
Less: Opening Stock	(2,500)
Required Production	8,500

5. **Option (b)** 51,500 kg and 27,000 kg

Materials Purchase Budget (Kg.)

Particulars	Material A	Material B
Requirement for Production	51,000 (8,500 units × 6 Kg.)	25,500 (8,500 units × 3 Kg.)
Add: Desired Closing Stock	8,000	5,500
Total Requirements	59,000	31,000
Less: Opening Stock	(7,500)	(4,000)
Quantity to be purchased	51,500	27,000

CASE SCENARIO 22

In a factory, a worker is paid ₹ 200 per day as basic pay, along with a Dearness Allowance (D.A.) of 120% of the basic pay, for working 6 days a week, 8 hours each day. He is allowed a 25 minutes lunch break and a 15 minutes tea break during his shift. Throughout the week, his time card recorded a total of 13 hours charged to Job A, 12 hours to Job B, and 15 hours to Job C. These hours reflect the time spent on each specific task during the workweek.

The time that was not assigned to specific jobs was considered abnormal idle time, as it was spent waiting for the next job to become available. This waiting time, which wasn't booked to any particular job, represents lost time that could have been used more efficiently if there had been a continuous flow of work.

MULTIPLE CHOICE QUESTIONS

1. CALCULATE the amount of wages to be allocated to different jobs and STATE the treatment of abnormal idle time.

   (a) Job A - ₹ 780, Job B - ₹ 720, Job C- 900 and wages paid for Abnormal idle time - ₹ 240 to be charged to Job C as maximum time is devoted to this Job.

   (b) Job A - ₹ 900, Job B - ₹ 720, Job C- 780 and wages paid for Abnormal idle time - ₹ 240 to be charged to Costing Profit & Loss A/c.

   (c) Job A - ₹ 780, Job B - ₹ 720, Job C- 900 and wages paid for Abnormal idle time - ₹ 240 to be charged to Costing Profit & Loss A/c.

   (d) Job A - ₹ 900, Job B - ₹ 720, Job C- 780 and wages paid for Abnormal idle time - ₹ 240 to be charged to Job C as maximum time is devoted to this Job.

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) Job A - ₹ 780, Job B - ₹ 720, Job C- 900 and wages paid for Abnormal idle time - ₹ 240 to be charged to Costing Profit & Loss A/c.

Reason:

Working notes:

(i) Total effective hours in a week:

[(8 hrs. – (25 minutes + 15 minutes)] × 6 days = 44 hours

(ii) Total wages for a week:

(₹ 200 + 120% of ₹ 200) × 6 days = ₹ 2,640

(iii) Wage rate per hour $= \left(\frac{₹\ 2,640}{44\ \text{Hours}}\right) = ₹\ 60$

(iv) Time wasted waiting for job (Abnormal idle time):

= 44 hrs. – (13 hrs. + 12 hrs. + 15 hrs.) = 4 hrs.

Allocation of wages		**(₹)**
Job A	13 hours × ₹ 60	780
Job B	12 hours × ₹ 60	720
Job C	15 hours × ₹ 60	900
Charged to Costing Profit & Loss A/c	4 hours × ₹ 60	240
Total		2,640

CASE SCENARIO 23

A hotel has 200 rooms (120 Deluxe rooms and 80 Premium rooms). The normal occupancy in summer is 80% and winter 60%. The period of summer and winter is taken as 8 months and 4 months respectively. Assume 30 days in each month. Room rent of Premium room will be double of Deluxe room. Hotel is expecting a profit of 20% on total revenue, total cost for the year is 2,66,11,200.

MULTIPLE CHOICE QUESTIONS

1. Calculate the room rent to be charged for Deluxe room.
   (a) ₹ 450 per room day
   (b) ₹ 900 per room day
   (c) ₹ 380 per room day
   (d) ₹ 760 per room day
2. Calculate the room rent to be charged for Premium room.
   (a) ₹ 450 per room day
   (b) ₹ 900 per room day
   (c) ₹ 380 per room day
   (d) ₹ 760 per room day

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ₹ 450 per room day

2. Option (b) ₹ 900 per room day

Reason:

Total Revenue (2,66,11,200/80%) = 3,32,64,000

Calculation of Room Days:

	Deluxe	Premium

Summer	120 rooms x 80% x 30 days x 8 months = 23,040	80 rooms x 80% x 30 days x 8 months = 15,360
Winter	120 rooms x 60% x 30 days x 4 months = 8,640	80 rooms x 60% x 30 days x 4 months = 5,760
Total room days	31,680	21,120

Let's assume the room rent of Deluxe room be 'x'

Then rent of Premium room will be '2x'

Therefore: 31,680x + 42,240x = 3,32,64,000

Room rent of Deluxe room be 'x' = 450

Rent of Premium room will be 450 x 2 = ₹ 900 per room day

CASE SCENARIO 24

Rinku Ltd is a manufacturing company which is producing bags of different varieties. The company is planning to establish a new plant in the neighboring country to produce the bags. New plant has a production capacity of 2,00,000 units per year. As per the studies, normal capacity utilization is 90% of the production capacity. The company will be able to sell the whole production after making price adjustments.

The following are the annual cost data on the basis of cost studies for the new plant in the neighboring country:

Material Cost	= ₹ 42,00,000 (100% variable)
Labour	= ₹ 40,00,000 (70% variable)
Factory Overheads	= ₹ 35,00,000 (60% variable)
Administrative Overheads	= ₹ 10,00,000 (30% variable)

Bags are being produced and sold on steady basis. It is estimated that it costs ₹ 1 as inventory holding cost per bag per month and that the set up cost per run of bag manufacture is ₹ 1,000.

The production of the new plant will be sold only the sales agent in the neighboring country who will receive ₹ 5 per bag. There is no other selling expenses other than commission. Fixed cost are calculated on the basis of normal capacity utilization of the plant.

Assume 365 days in a year.

Being a cost manager of the company, you are required answer the following questions being asked by the management of the company:

MULTIPLE CHOICE QUESTIONS

1. What is the total variable cost of the bags being produced?

   (a) ₹ 80,00,000

   (b) ₹ 93,00,000

(c) ₹ 1,03,00,000

(d) ₹ 33,00,000

2. What is the total fixed cost of the bags being produced?

(a) ₹ 40,00,000

(b) ₹ 35,00,000

(c) ₹ 53,00,000

(d) ₹ 33,00,000

3. Calculate the break-even point if the sales price is ₹100 per bag?

(a) 65,159 bags

(b) 77,139 bags

(c) 93,000 bags

(d) 86,503 bags

4. Calculate the optimum run size and number of runs for bag manufacturing?

(a) 7,746 bags and 24 runs

(b) 8,000 bags and 23 runs

(c) 6,503 bags and 28 runs

(d) 5,478 bags and 33 runs

5. What is the interval between two consecutive runs?

(a) 11 days

(b) 10 days

(c) 15 days

(d) 19 days

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) ₹ 1,03,00,000

2. Option (d) ₹ 33,00,000

Reason for 1 and 2:

Working note

Particulars	₹
Variable Cost:	
Material	42,00,000
Labour (40,00,000 x 70%)	28,00,000
Factory Overheads (35,00,000 x 60%)	21,00,000
Administrative Overheads (10,00,000 x 30%)	3,00,000
Commission (1,80,000 x 5)	9,00,000
Total Variable cost	1,03,00,000
Fixed Cost:	
Labour (40,00,000 x 30%)	12,00,000
Factory Overheads (35,00,000 x 40%)	14,00,000
Administrative Overheads (10,00,000 x 70%)	7,00,000
Total Fixed Cost	33,00,000

3. Option (b) 77,139 bags

Variable cost per bag = ₹ 1,03,00,000/1,80,000

= ₹ 57.22

Contribution per bag = ₹ 100 – ₹ 57.22 = ₹ 42.78

Break-even point (in number of bags)

= Fixed cost/Contribution per bag

= ₹ 33,00,000/₹ 42.78

= 77,139 bags

4. Option (d) 5,478 bags and 33 runs

$$EBQ = \sqrt{\frac{2DS}{C}}$$

Where,

D = no. of bags to be produced annually

S = Set up cost per production run

C = Carrying cost per unit per annum

$$EBQ = \sqrt{\frac{2 \times 1,80,000 \times 1000}{1 \times 12}}$$

= 5,478 bags

No. of optimum runs = 1,80,000/5,478

= 32.86 or 33 runs

5. Option (a) 11 days

Interval between 2 runs (in days) = 365 days/33 = 11 days

Working Note

Given:

	Standard		Actual	
	Workers	**Rate per week**	**workers**	**Rate per week**
Skilled	150	120	140	140
Semi-skilled	90	80	60	100
unskilled	120	60	160	40

Standard time = 60 weeks

Actual time = 64 weeks

	Standard			Actual		
	Weeks	**Rate**	**Amount**	**Weeks**	**Rate**	**Amount**
Skilled	9,000	120	10,80,000	8,960	140	12,54,400
Semi-skilled	5,400	80	4,32,000	3,840	100	3,84,000
unskilled	7,200	60	4,32,000	10,240	40	4,09,600
total	21,600		19,44,000	23,040		20,48,000

1. Cost Variance = 19,44,000 – 20,48,000 = 1,04,000(A)

2. Rate Variance =

Skilled	8,960 x (120-140)	1,79,200 (A)
Semi-skilled	3,840 x (80-100)	76,800 (A)
unskilled	10,240 x (60-40)	2,04,800 (F)
		51,200 (A)

3. Efficiency Variance =

Skilled	120 x (9,000-8,960)	4,800(F)
Semi-skilled	80 x (5,400-3,840)	1,24,800(F)
unskilled	60 x (7,200-10,240)	1,82,400(A)
		52,800(A)

4. Revised Labour Efficiency Rate=

Skilled	120 x (9,000-9,600)	72,000(A)
Semi-skilled	80 x (5,400-5,760)	28,800(A)
unskilled	60 x (7,200-7,680)	28,800(A)
		1,29,600(A)

5. Labour Mix Variance=

Skilled	120 x (9,600-8,960)	76,800(F)
Semi-skilled	80 x (5,760-3,840)	1,53,600(F)
unskilled	60 x (7,680-10,240)	1,53,600(A)
		76,800(F)

Labour Mix Variance (76,800 F) + Revised Labour Efficiency Variance (1,29,600 A)

= Total Labour Efficiency (52,800 A)

Total Lab Efficiency Variance – Labour Efficiency Variance of Skilled And Semi Skilled

= Labour Efficiency Variance of Unskilled

52,800A – 1,29,600A = 1,82,400A,

So, Labour Efficiency Variance of Unskilled = 1,82,400A

CASE SCENARIO 25

A company is working in manufacturing sector and uses labour-force, which consists of skilled, semi-skilled, and unskilled worker.

It had planned the labour for a job that would take 60 weeks to be completed, ideally. Ratio of workers employed in skilled, semi-skilled, and unskilled would be 5:3:4. The management consultant who was employed to handle this job died in an accident. Board hired a new consultant to take over this job.

This new consultant had a different approach for doing this job. He thought that workers actually required would be in the ratio of 7:3:8. He changed the composition of labour-force and employed the workers in the new ratio.

Project was carried out successfully and it turned out that this change in Mix of labour-force saved the company ₹ 76,800 in the job but at the same time company also lost ₹ 1,29,600 due to poor productivity of the labourers.

As a result, management consultant was promoted and labour force was fired & was replaced with more experienced labour-force.

As the new management consultant was promoted, company found a new one to replace him. This 3rd management consultant was asked to understand and analyse the previous job done by the 2nd management consultant. Data in addition to above-given information was provided as follows:

- Total time period taken for the job was 64 weeks.
- Net extra cost spent, in comparison to planned cost, was ₹ 1,04,000.
- Total number of weeks worked by all the type of labourers was 23,040 weeks.
- Skilled and semi-skilled labourers in reality charged ₹ 20 extra per week, whereas unskilled labourers were negotiated to charge ₹ 20 less per week, than what they had charged earlier.

Let say, you are the 3rd management consultant, and you have been given with all this information. Work out calculations and answer the following questions based on the information given above.

MULTIPLE CHOICE QUESTIONS

1. If the total of labour efficiency variance of skilled and semiskilled labourers is ₹ 1,29,600 (Favourable), what is the labour efficiency variance of unskilled labour?

   (a) 1,82,400 (Adverse)

   (b) 52,800 (Adverse)

   (c) 1,29,600 (Adverse)

   (d) 76,800 (Favourable)

2. What are the amounts that company saved & paid extra to labourers, respectively?

   (a) 2,56,000 & 2,04,800

   (b) 1,79,200 & 204,800

   (c) 2,04,800 & 2,56,000

   (d) 2,04,800 & 1,79,200

3. If in total 1,440 weeks were worked in addition to what was planned, how many extra/less workers were used in actual, compared to standard? (Answer in sequence of skilled, semi-skilled, & unskilled).

   (a) -10, -30, -40

   (b) -10, -30, +40

   (c) +10, +30, -40

   (d) +10, +30, +40

4. Calculate revised standard weeks for all 3 types of labour forces? (Answer in sequence of skilled, semi-skilled, & unskilled).

   (a) 9,400, 5,650, & 7,990

   (b) 9,550, 6,280, & 7,210

   (c) 8,520, 6,850, & 7,670

   (d) 9,600, 5,760, & 7,680

5. If standard rates charged by skilled, semi-skilled, and unskilled were ₹ 120, ₹ 80, & ₹ 60, respectively, then which labour force performed worst, better, & best, due to change in labour composition?

   (a) Semi-skilled, skilled, & unskilled

   (b) Skilled, semi-skilled, unskilled

   (c) Unskilled, skilled, & semi-skilled

   (d) Unskilled, semi-skilled, & skilled

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) 1,82,400 (Adverse)

Reason:

Total actual weeks = 23040

Ratio of actual workers = 7:3:8

Let's assume that total number of workers is 'X'

(7/18 x X x 64) + (3/18 x X x 64) + (8/18 x X x 64) = 23,040

X = 360

	No. of workers	Weeks worked
Skilled	140	140 x 64 = 8,960
Semi-skilled	60	60 x 64 = 3,840
unskilled	160	160 x 64 = 10,240

2. Option (c) 2,04,800 & 2,56,000

Reason:

Money saved or spent:

	Weeks worked	Saved/spent extra, per week	Total
Skilled	8,960	20 spent extra	-1,79,200
Semi-skilled	3,840	20 spent extra	-76,800
unskilled	10,240	20 saved	+2,04,800

Saved = 2,04,800

Spent = 2,56,000

3. Option (b) -10, -30, +40

Reason:

Actual weeks = 23,040

(-) extra = (1,440)

Planned weeks = 21,600

Original standard ratio = 5:3:4

Standard weeks chart:

	Weeks	**Works**
Skilled	21,600x5/12 = 9,000	9,000/60 weeks = 150
Semi-skilled	21,600x3/12 = 5,400	5,400/60 weeks = 90
unskilled	21,600x4/12 = 7,200	7,200/60 weeks = 120

	Planned workers	**Actual workers**	**Actual compared to standard**
Skilled	150	140	-10
Semi-skilled	90	60	-30
unskilled	120	160	+40

4. Option (d) 9,600, 5,760, & 7,680

Reason:

Actual weeks is divided in standard ratio of workers

23,040 IN 5:3:4

	Revised Standard Weeks
Skilled	9,600
Semi-skilled	5,760
unskilled	7,680

5. **Option (c)** Unskilled, skilled, & semi-skilled

Reason:

Change in performance of workers, due to change in labour composition, can we evaluated through labour mix variance. We have already calculated labour mix variance above. Answers are:

	Labour mix variance
Skilled	76,800 F
Semi-skilled	1,53,600 F
unskilled	1,53,600 A

This means unskilled labour performed the worst, skilled labour performed better than unskilled, and semi skilled performed the best.

CASE SCENARIO 26

XYZ Engineering Ltd is a medium-sized manufacturing company engaged in the production of a standard industrial component. The company operates on a continuous production system and follows a well-defined inventory control policy to avoid stock-outs and excessive investment in raw materials.

The finished product requires the use of three raw materials – A, B, and C in fixed proportions. Due to fluctuations in market demand and operational constraints, the company's weekly production output varies between 175 units and 225 units, with an average production level of 200 units per week.

To ensure uninterrupted production, the Purchase Department has established re-order quantities, re-order levelps, and minimum stock levels for each raw material based on past experience and supplier lead times. Delivery periods vary depending on supplier location and logistics conditions, and are expressed in minimum, average, and maximum weeks.

The details relating to raw materials are as follows:

Raw Material	Usage per Unit (kg)	Re-order Quantity (kg)	Price per kg (₹)	Delivery Period (Weeks)	Re-order Level (kg)	Minimum Level (kg)
A	10	10,000	0.10	1 – 2 – 3	8,000	?
B	4	5,000	0.30	3 – 4 – 5	4,750	?
C	6	10,000	0.15	2 – 3 – 4	?	2,000

The management has requested the Costing Department to review the inventory levels and compute the missing stock parameters to support better decision-making.

Based on the above information, answer the following multiple-choice questions.

MULTIPLE CHOICE QUESTIONS

1. What is the minimum stock level of Raw Material A?

   (a) 2,000 kg

(b) 3,000 kg

(c) 4,000 kg

(d) 5,000 kg

2. What is the maximum stock level of Raw Material B?

(a) 7,650 kg

(b) 9,750 kg

(c) 10,250 kg

(d) 11,750 kg

3. What is the re-order level of Raw Material C calculated through minimum stock and average consumption?

(a) 4,200 kg

(b) 4,800 kg

(c) 5,600 kg

(d) 6,000 kg

4. What is the maximum stock level of Raw Material A?

(a) 10,500 kg

(b) 16,250 kg

(c) 6,500 kg

(d) 17,000 kg

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) 4,000 kg

Reason:

Minimum stock of A

Re-order level – (Average consumption × Average time required to obtain delivery)

= 8,000 kg. – (200 units × 10 kg. × 2 weeks) = 4,000 kg.

2. **Option (a)** 7,650 kg

Reason:

Maximum stock of B

Re-order level – (Min. Consumption × Min. Re-order period) + Re-order quantity

= 4,750 kg. – (175 units × 4 kg. × 3 weeks) + 5,000 kg.

= 9,750 - 2,100 = 7,650 kg.

3. **Option (c)** 5,600 kg

Reason:

Re-order level of C

= Minimum stock of C + (Average consumption × Average delivery time)

= 2,000 kg. + [(200 units × 6 kg.) × 3 weeks] = 5,600 kg

4. **Option (b)** 16,250 kg

Reason:

Maximum stock of A

= ROL + ROQ – (Minimum consumption × Minimum re-order period)

= 8,000 kg. + 10,000 kg. – [(175 units × 10 kg.) × 1 week] = 16,250 kg.

CASE SCENARIO 27

Company Rontomax maintains its accounts in Delhi head office. All the records of Rontomax are safely kept in this office only. In the 2nd quarter Delhi office went under repair. Thus, for the 2nd quarter records were maintained in Gurugram branch office. This branch's main work is to bring business to the company and thus generally no records are maintained in this branch office.

So for 2nd quarter all the records were recorded and maintained in this Gurugram office only. At the end of 2nd quarter, fire broke out in this branch and unfortunately all the records were burned.

In the beginning of 3rd quarter a board meeting was going to be conducted and performance of 2nd quarter were to be discussed. Company secretary, Mr. Manoj, was responsible for preparing a report of performance to be presented to the board. Now he is under immense pressure as the records were burned and thus he was not able to prepare a performance report.

Manoj contacted the Delhi head office and received a copy of 1st quarter records. He also got some information through emails shared between head office and branch office. He somehow got a lot of information but this information doesn't make any sense as it is in parts and pieces. He called out for help of Finance and cost head, Miss Bharti, who is also a Chartered accountant.

Now both of them are at task to work out this information and be able to present a summary performance report to be presented to the board in the board meeting. Data that Manoj was able to gather was:

- Rontomax garnered revenue of ₹ 80,00,000 in 1st quarter of 2023. Its tax provision expense was ₹ 4,50,000 calculated on earning before tax in the same period.
- Cost of Goods Sold (COGS) and Operating expenses in 1st quarter were ₹, 38,00,000 and ₹ 12,50,000 respectively.
- Quarterly interest expense was ₹ 1,50,000.
- Non-operating expense other than interest was ₹ 13,00,000 in the 1st quarter.

- Selling price was reduced by 8% & no. of units sold increased by 25% from 1st quarter to 2nd quarter.
- Variable cost per unit for maintaining the day-to-day business operations is 30% of variable cost per unit of producing the goods.
- EBIT per unit for 2nd quarter is ₹ 38.857 which has gone down by ₹ 8.285 from 1st quarter.

Manoj tells Bharti about the general format of questions that board asks from him, every quarter. So, they decide to find out the answers of such questions before-hand so that meeting can be conducted smoothly.

Following are those questions that they are seeking for solutions. Consider yourself as their assistant trainee and help to find these answers.

MULTIPLE CHOICE QUESTIONS

1. Find out the sales amount of Quarter 2. Select the correct answer.

   (a) ₹ 76,50,000

   (b) ₹ 86,00,000

   (c) ₹ 92,00,000

   (d) ₹ 96,50,000

2. What is the total variable cost & fixed cost in quarter 1 as per marginal costing income statement, respectively?

   (a) ₹ 49,40,000 & ₹ 1,10,000

   (b) ₹ 3,26,000 & ₹ 17,90,000

   (c) ₹ 17,90,000 & ₹ 3,26,000

   (d) ₹ 4,94,000 & ₹ 11,10,000

3. If Fixed cost & total variable cost as per marginal costing doesn't change, what is the cost change in 2nd quarter?

   (a) Operating expenses increased by ₹ 11,50,000

   (b) Non-operating expense decreased by ₹ 11,50,000

   (c) Operating expenses decreased by ₹ 11,50,000

(d) Non-operating expenses increased by ₹ 11,50,000

4. If operating fixed cost, total variable cost, & interest cost remains same in quarter 2, what is the tax provision for 2nd quarter?

(a) ₹ 4,65,000

(b) ₹ 4,75,000

(c) ₹ 4,85,000

(d) ₹ 4,45,000

5. What is the amount of profit excluding non-operating expenses in quarter 2?

(a) ₹ 38,50,000

(b) ₹ 36,50,000

(c) ₹ 41,50,000

(d) ₹ 29,50,000

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) ₹ 92,00,000

Quarter 1:

	Amount (₹)
Sales	80,00,000
(-) COGS	(38,00,000)
(-) Operating expenses	(12,50,000)
(-) Non-operating expenses	(13,00,000)
EBIT of 1ST Quarter	16,50,000

Let's assume no. of units sold in 1st quarter = X

EBIT per unit of 1st quarter = 38.857 + 8.285 = ₹ 47.142

Then, 16,50,000/X = 47.142

X = 35,000 units

Number of units sold in 2nd Qtr. = 35,000 + 35,000x0.25 = 43,750 units

Selling price in Qtr 1 = 80,00,000/35,000 = ₹ 228.571

Selling price in Qtr 2 = ₹ 210.285

Sales in Qtr 2 = 210.285 x 43,750 = ₹ 92,00,000

2. Option (a) ₹ 49,40,000 & ₹ 1,10,000

Reason:

COGS is 100% variable

VC per unit of operating expenses = 30% of COGS per unit

COGS per unit = 38,00,000/35,000 = ₹ 108.571

VC per unit of operating expenses = 30% x 108.571 = ₹ 32.571

VC in operating expenses = 32.571 x 35,000 = 11,40,000

Fixed cost in operating expenses = 12,50,000 – 11,40,000 = ₹ 1,10,000

Total Variable Cost = 11,40,000 + 38,00,000 = ₹ 49,40,000

Total fixed cost = ₹ 1,10,000

3. Option (d) Non-operating expenses increased by ₹ 11,50,000

Reason:

EBIT in Qtr 2 = 38.857 x 43,750 = ₹ 17,00,000

Non operating expenses in 2^{nd} Qtr = Revenue – VC – FC - EBIT

= 92,00,000 – 49,40,000 – 1,10,000 – 17,00,000

= ₹ 24,50,000

Non operating expenses in 1^{st} Qtr = ₹ 13,00,000

NOE increased by 11,50,000

4. Option (a) ₹ 4,65,000

Reason:

EBIT of 1^{ST} Qtr = ₹ 16,50,000

EBT of 1^{ST} Qtr = EBIT – Int = 16,50,000 – 1,50,000 = ₹ 15,00,000

Tax Provision for 1st Qtr = ₹ 4,50,000

Tax rate = 4,50,000/15,00,000 = 30%

EBT for 2nd Qtr = 17,00,000 – 1,50,000 = ₹ 15,50,000

Tax provision for 2nd Qtr = 15,50,000 x 30% = ₹ 4,65,000

5. Option (c) ₹ 41,50,000

Reason:

Profit in 2nd Qtr as per Marginal Costing

= Sales – VC – FC

= 92,00,000 - 49,40,000 - 1,10,000 = ₹ 41,50,000

CASE SCENARIO 28

ABC Transport Services Pvt. Ltd. is a private bus company renowned for providing reliable and comfortable intercity passenger services. The company operates a fleet of buses that connect two major cities, Mumbai and Pune, which are 150 kilometers apart. By ensuring timely and efficient services, ABC Transport Services has become a preferred choice for travelers commuting between these two bustling cities.

Fleet and Operations

The company operates a total of 10 buses, each designed for optimal comfort and safety. Every bus in the fleet has a seating capacity of 50 passengers, equipped with modern amenities to enhance the travel experience. The buses adhere to strict maintenance schedules to ensure safety and reliability on the road. The company operates multiple trips daily to accommodate the high demand for travel between Mumbai and Pune. The buses normally operate at 80% capacity.

Cost Data:

Cost Category	Amount (₹)
Fixed Costs (per month)	
Insurance	2,00,000
License Fees	50,000
Salaries to Driver and Conductor	5,00,000
Garage Rent	1,00,000
Depreciation	3,00,000
Administration Expenses	1,50,000
Variable Costs (per kilometer)	
Fuel	₹ 35 per km
Lubricants and Oils	₹ 5 per km
Wages per bus (additional per trip)	₹ 10,000 per trip
Operational Data	
Number of round trips per bus in this month	20 trips
Average occupancy rate	80%

Additional Info:

In the past few months, the repairs and maintenance costs for ABC Transport Services Pvt. Ltd. have shown some variability due to fluctuating operational conditions. For instance, in April, the total repairs & maintenance costs amounted to ₹ 1,40,000, with the company reporting 18 trips per bus. In May, these costs increased to ₹ 1,60,000 due to additional maintenance activities and 22 trips per bus.

You are required to answer the following requirements.

MULTIPLE CHOICE QUESTIONS

1. Calculate the cost per trip per bus.
   (a) ₹ 21,750
   (b) ₹ 29,250
   (c) ₹ 23,450
   (d) ₹ 28,250
2. Determine the total cost of operating one bus for a month.
   (a) ₹ 5,20,000
   (b) ₹ 4,45,000
   (c) ₹ 6,10,000
   (d) ₹ 5,85,000
3. What is the monthly revenue if each ticket is priced at ₹1,000 per trip?
   (a) ₹ 90,00,000
   (b) ₹ 1,00,00,000
   (c) ₹ 80,00,000
   (d) ₹ 75,00,000
4. Calculate the break-even number of passengers per trip if the ticket price is ₹635.
   (a) 44 passengers

(b) 49 passengers

(c) 47 passengers

(d) 50 passengers

5. Calculate the cost per passenger-kilometer.

(a) ₹ 2.438

(b) ₹ 4.88

(c) ₹ 3.75

(d) ₹ 5.25

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) ₹ 29,250

Reason:

Fixed Costs per Trip per Bus

$$= \frac{\text{Total Fixed Costs}}{\text{Number of Buses x Number of Trips}}$$

= ₹ 13,00,000 / (10 x 20) = ₹ 6,500

Semi-Variable Costs (Repairs & Maintenance) per Trip per Bus

$$= \frac{\text{Total Semi} - \text{Variable Costs}}{\text{Number of Buses x Number of Trips}}$$

= ₹ 1,50,000 / (10 x 20) = ₹ 750

Variable Costs per Trip per Bus

= (Fuel + Lubricants and Oils) x Distance per Trip + Wages

= (₹ 35 + ₹ 5) x (150 kms x 2) + ₹ 10,000 = ₹ 22,000

Total Cost per Trip per Bus = ₹ 6,500 + ₹ 750 + ₹ 22,000 = ₹ 29,250

Total Fixed Costs:

- Insurance: ₹ 2,00,000
- License Fees: ₹ 50,000

- Salaries to Driver and Conductor: ₹ 5,00,000
- Garage Rent: ₹ 1,00,000
- Depreciation: ₹ 3,00,000
- Administration Expenses: ₹ 1,50,000
- **Total Fixed Costs: ₹ 13,00,000**

Repairs & Maintenance calculation

- Let x be the fixed portion of the semi-variable costs.
- Let y be the variable cost per trip.

Formulate Equations from Given Data:

- April: x + 18y = 1,40,000
- May: x + 22y = 1,60,000

Solve for y:

- Subtract the April equation from the May equation:
- (x+22y) − (x+18y) = 1,60,000 – 1,40,000
- y = 5,000
- Using the April equation:
- x + 18 x (5,000) = 1,40,000
- x = 50,000

Calculate Semi-Variable Costs for 20 Trips:

- Semi-variable costs = x + 20y
- Semi-variable costs = 50,000 + 20 x 5,000 = 1,50,000

2. Option (d) ₹ 5,85,000

Reason:

Fixed Costs per Bus per Month = ₹ 13,00,000 / 10 = ₹ 1,30,000

Semi-Variable Costs per Bus per Month = ₹ 1,50,000 / 10 = ₹ 15,000

Variable Costs per Trip = (Fuel + Lubricants and Oils) x Distance per Trip + Wages

= (₹ 35 + ₹ 5) x 300 + ₹ 10,000 = ₹ 22,000

Variable Costs for 20 trips = ₹ 4,40,000

Total Cost per Bus per Month = 1,30,000 + 15,000 + 4,40,000

= ₹ 5,85,000

3. Option (c) ₹ 80,00,000

Reason:

Monthly Revenue = Number of Buses x Number of Trips x Average Occupancy Rate x Ticket Price

= 10 x 20 x 50 x 80% x ₹ 1,000 = ₹ 80,00,000

4. Option (c) 47 passengers

Reason:

No. of Passengers per trip to recover total cost = Total Cost per Trip/Ticket Price

= ₹ 29,250 / ₹ 635 = 46.03 passengers per trip ≈ 47 passengers per trip

5. Option (a) ₹ 2.438

Reason:

Total Passenger-Kilometers = 10 buses x 20 trips x 40 passengers (50 x 80%) x 150 km x 2

= 24,00,000 passenger-kms

Cost per Passenger-Kilometer = Total Monthly Cost / Total Passenger-Kilometers

= ₹ 29,250 x (10x20) / 24,00,000

= ₹ 58,50,000/24,00,000

= ₹ 2.438 per passenger-kilometer

CASE SCENARIO 29

In a company's production process, two joint products, A and B, are created simultaneously. The company operates in the manufacturing sector, focusing on producing goods that require multiple stages of production, often resulting in the creation of joint products that share common production costs up until a certain split-off point. For the last month, the following information is provided relating to the inventory and sales:

Product	Sales (units)	Finished Goods (units)	
		Opening stock	Closing stock
A	1,14,000	1,900	5,700
B	76,000	7,600	3,800

Joint production costs for the last month amounted to ₹ 20,90,000. These costs were allocated between both the joint products, A and B, based on the number of units produced. This method of apportioning costs ensures that each product is fairly charged for its share of the overall production expenses.

MULTIPLE CHOICE QUESTIONS

1. CALCULATE the joint production costs apportioned to product A for last month?

   (a) ₹ 12,12,200

   (b) ₹ 12,54,000

   (c) ₹ 12,95,800

   (d) ₹ 13,58,500

2. CALCULATE the joint production costs apportioned to product B for last month?

   (a) ₹ 10,12,200

(b) ₹ 6,54,000

(c) ₹ 12,95,800

(d) ₹ 7,94,200

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) ₹ 12,95,800

2. Option (d) ₹ 7,94,200

Product	Sales (units) (A)	Finished Goods (units)		Production (units) (D) = (A) + (C) - (B)
		Opening stock (B)	Closing stock (C)	
A	1,14,000	1,900	5,700	1,17,800
B	76,000	7,600	3,800	72,200
Total				1,90,000

$$\text{Apportioned to A} = \left(\frac{1,17,800 \text{ units}}{1,90,000 \text{ units}} \times ₹\ 20,90,000\right)$$

$$= ₹\ 12,95,800$$

$$\text{Apportioned to B} = \left(\frac{72,200 \text{ units}}{1,90,000 \text{ units}} \times ₹\ 20,90,000\right)$$

$$= ₹\ 7,94,200$$

CASE SCENARIO 30

Sterling Industries manages various manufacturing processes. In process I, joint products P1 and P2 are produced in the ratio of 6:4 in units from the raw material input. A normal loss of 2% of the raw material input is expected in this process, with losses having a realizable value of ₹ 12.5 per kg. The company has no work in progress. The joint costs are apportioned between the joint products using the physical measure basis.

The following information relates to process I for last month:

Raw materials input	75,000 kg (at a cost of ₹ 4,76,250)
Direct labour	₹ 2,25,000
Direct expenses	₹ 67,500
Production Overheads	110% of direct labour cost
Abnormal gain	1,250 kg

You are required to answer the following:

MULTIPLE CHOICE QUESTIONS

1. Calculate the number of unit and its value of the Normal loss.

(a) Normal loss: 1,500 units ₹ 16,964;

(b) Normal loss: 1,250 units ₹ 18,750;

(c) Normal loss: 1,500 units ₹ 18,750;

(d) Normal loss: 1,600 units ₹ 18,750;

2. Calculate the number of unit and its value of the Abnormal gain.

(a) Abnormal gain: 1,250 units ₹ 18,750;

(b) Abnormal gain: 1,500 units ₹ 16,964;

(c) Abnormal gain: 1,600 units ₹ 17,580;

(d) Abnormal gain: 1,250 units ₹ 16,964

3. You are required to calculate the number of unit and its value of the joint products P1 & P2.

(a) Product P1: 44,850 units ₹ 6,08,678 and Product P2: 29,900 units ₹ 4,05,786.

(b) Product P1: 45,000 units ₹ 7,05,600 and Product P2: 30,000 units ₹ 4,05,000.

(c) Product P1: 44,550 units ₹ 3,08,650 and Product P2: 29,550 units ₹ 2,06,530.

(d) Product P1: 44,850 units ₹ 4,05,900 and Product P2: 29,900 units ₹ 2,08,560.

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) Normal loss: 1,500 units ₹ 18,750

2. Option (d) Abnormal gain: 1,250 units ₹ 16,964

3. Option (a) Product P1: 44,850 units ₹ 6,08,678 and Product P2: 29,900 units ₹ 4,05,786.

Reason:

Process- I Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Raw material	75,000	4,76,250	By Normal loss (W.N. (ii))	1,500	18,750
To Direct labour		2,25,000	By Output (W.N. (iii))		
To Direct expenses		67,500	P1 (W.N. (iv))	44,850	6,08,678
To Production overheads (W.N.(i))		2,47,500	P2 (W.N. (iv))	29,900	4,05,786
To Abnormal gain (W.N. (iv))	**1,250**	**16,964**			
	76,250	10,33,214		76,250	10,33,214

Working Note Working Notes (W.N.):

(i) Production overheads = 110% x 2,25,000

= ₹ 2,47,500

(ii) Normal loss = 2% x 75,000 = 1,500 kg at ₹ 12.5

= ₹ 18,750

(iii) Total output = 75,000 input + **1,250** abnormal gain - **1,500** normal loss

= 74,750 kg

P1 and P2 is produced in the ratio 6:4

P1 $= \left(\frac{6}{10}\right)$ x 74,750 = 44,850 kg

P2 $= \left(\frac{4}{10}\right)$ x 74,750 = 29,900 kg

(iv) Value of Abnormal Gain:

$$= \left(\frac{\text{Total Cost - Realisable value of normal loss}}{\text{Total input units - Normal Loss units}} \text{ x Abnormal Gain units}\right)$$

$$= \left(\frac{₹\ 4,76,250 + ₹\ 2,25,000 + ₹\ 67,500 + ₹\ 2,47,500 - ₹\ 18,750}{75,000 - 1,500 \text{ units}} \text{ x } 1,250 \text{ units}\right)$$

= ₹ 16,964

Value of Joint Products:

$$= \left(\frac{\text{Total Cost - Realisable value of normal loss}}{\text{Total input units - Normal Loss units}} \text{ x Output units}\right)$$

$$P = \left(\frac{₹\ 4,76,250 + ₹\ 2,25,000 + ₹\ 67,500 + ₹\ 2,47,500 - ₹\ 18,750}{75,000 - 1,500 \text{ units}} \text{ x } 44,850 \text{ units}\right)$$

= ₹ 6,08,679

$$P2 = \left(\frac{₹\ 4,76,250 + ₹\ 2,25,000 + ₹\ 67,500 + ₹\ 2,47,500 - ₹\ 18,750}{75,000 - 1,500 \text{ units}} \text{ x } 29,900 \text{ units}\right)$$

= ₹ 4,05,786

CASE SCENARIO 31

Mr. Linde is a German national, who came to India again on 1st April, 2024. He represents his company and wants to start business in India as well. His company expertise in the manufacturing of Industrial machines. Recently launched "Make in India" movement has motivated Mr. Linde thinks that this might be the perfect opportunity for his company to establish his company in India.

Last, Mr. Linde came to India on 1st April, 2012. He purchased a land for ₹ 50,00,000 and constructed a building by spending ₹ 16,00,000. After that he opened a Private limited company in that building. He spent another ₹ 2,80,000 for this. He also employed 3 people for survey and to understand the need of Indian customers and spent ₹ 1,50,000 in salaries.

He was disappointed in the response of market, who were importing everything from China back then. He closed the office & went back to Germany. All these years the office was closed and only an amount of ₹ 12,500 per month was paid to a guard and property tax was also paid. Property tax was paid on an average of ₹ 18,000 per year.

Now when Mr. Linde is back, he opens the office and starts to plan on how this time he will capture the Indian market.

Expenses started to incur as soon as the office opened:

- Salaries of staff ₹ 2,50,000 per month.
- Electricity, water, & maintenance of office at ₹ 50,000 per month.
- Security staff at ₹ 15,000 per month.

Linde plans to purchase a land in Manesar which will be used for the factory. After a search he found an appropriate land and purchased a land for ₹ 1.50 crores. He handed over the land to a SPV company of a REIT to build a state of the art facility for their factory. Factory will be built in 2 years. They will spend ₹ 85 lacs each year for this construction.

Linde, back in the Noida office, made 3 departments:

(1) Office and administration

(2) Sales and marketing

(3) Account and Finance

Expenses for these departments (except for salaries) are expected to be:-

- Office and administration = ₹ 95,000 per year
- Sales and marketing = ₹ 1,12,000 per year
- Accounts and Finance = ₹ 88,000 per year

Office overheads are to be bifurcated in these departments on the basis of their individual spending ratio.

Technology is developed in Germany but at present its execution is not required. Therefore, they do not require any expert as of now and also because the factory is not ready.

Mr. Linde, being the only person representing his company and lone German in the Indian office feels difficult to manage everything as he finds Indian corporate environment very challenging. He asked his company to deploy another German manager to India. This will cost the company additional two million Indian national rupee per year to relocate this additional manager in India. The German management is divided on this decision. The ones who disagree say "Mr. Linde is competent enough to run a small extension of our company in India. We will allocate more resources to Indian subsidiary when actual operations will start, till then everything can be managed by Mr. Linde alone. Right Indian Company is itself a cost centre and we are already paying him 3.5 million INR annually, therefore we are not ready to invest until it starts generating revenue".

Linde has another opportunity to relocate the head office, also, to Manesar, where the factory building is being constructed. The distance between head office and factory will reduce greatly, which will be highly beneficial when the factory will become operative. He will have to sale the old office in Noida, which will be sold at ₹ 2.50 crores and purchase a ready-made building in Manesar for ₹ 3.75 crores. This new building will have larger space that can accommodate the future needs for space, when company will grow. It seems to be like perfect investment opportunity to Linde.

Expenses in this new building are expected to be:

- Salaries of staff ₹ 3,00,000 per month
- Electricity, water, & maintenance of office at ₹ 80,000 per month.
- Security at ₹ 30,000 per month.

Indexed cost of building in Noida is ₹ 2.25 crores and tax on long-term capital gain is 12.5%.

On the basis of above information, answer the following 5 MCQs:

MULTIPLE CHOICE QUESTIONS

1. Find out an avoidable cost till the factory becomes operative. What is its value?

   (a) 20,00,000

   (b) 49,20,000

   (c) 98,40,000

   (d) 40,00,000

2. Find out the total of Sunk and shut down cost in the given case study. Select the correct option from below.

   (a) 4,30,000

   (b) 70,30,000

   (c) 24,46,000

   (d) 90,46,000

3. What is total out-of-pocket cost for the company in Noida branch, after factory land in Manesar is purchased, till the factory operation begins?

   (a) 3,21,50,000

   (b) 1,51,50,000

   (c) 81,50,000

   (d) 40,75,000

4. What will be out of pocket expenses incurred in relocation of Head office to Manesar?

   (a) 3,75,00,000

   (b) 1,28,12,500

   (c) 1,25,00,000

   (d) 4,24,20,000

5. How much is the unexpired cost of the Noida office as on 1st October, 2024, if salaries to all the employees are paid till 31st March, 2025?

   (a) 33,40,000

   (b) 30,00,000

   (c) 15,90,000

   (d) 15,00,000

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) 40,00,000

Reason:

Only avoidable cost is a new managers salary for 2 years

= ₹ 20,00,000 x 2 = ₹ 40,00,000

2. Option (d) 90,46,000

Reason:

Shut down cost is the cost spent when the company was shut down for 12 years in India

= 12,500 x 12 x 12 + 18,000 x 12 = ₹ 20,16,000

Sunk cost are all the costs that was spent in 2012

= 50,00,000+16,00,000+2,80,000+1,50,000

= ₹ 70,30,000

Total = ₹ 90,46,000

3. Option (a) 3,21,50,000

Reason:

Calculation

Particulars		Amount (₹)
Salary	2,50,000 x 12 x 2	60,00,000
Electricity, etc.	50,000 x 12 x 2	12,00,000
Security	15,000 x 12months x 2 years	3,60,000
O&A	95,000 x 2 years	1,90,000
Sales	1,12,000 x 2 years	2,24,000
Accounts	88,000 x 2 years	1,76,000
Salary of linde	35,00,000 x 2	70,00,000
Construction	85,00,000 x 2	1,70,00,000
Total		**3,21,50,000**

4. Option (b) 1,28,12,500

Reason:

Cost of new office = ₹ 3,75,00,000

Money received from sale of Noida office

= 2,50,00,000 – (2,50,00,000 – 2,25,00,000) x 12.5%

= ₹ 2,46,87,500

Out of pocket expenses for relocation of head office

= 3,75,00,000 – 2,46,87,500 = ₹ 1,28,12,500

5. Option (a) 33,40,000

Reason:

Unexpired cost = advance salary paid till march of next year

= (2,50,000+15,000) x 6months + 35,00,000/2 = ₹ 33,40,000

CASE SCENARIO 32

The HomeMart is the latest trending brand offering home improvement appliances with broadest selection of products with highly competitive prices. The sale is increasing year by year with huge multiples. Current year also the sales reached triple the last year. The reason being company having good customer support where it provides after sales assistance over phone per item sold. Though it costs only Re. 1 per item sold to the company, it enhanced to ₹ 49,15,200 last year making a huge impact on the total support cost.

All the company's appliances have been majorly categorised into three product lines namely Fancy fans, Home decors, Assembled furniture. During the current year, the company's revenue as generated is ₹ 3,80,88,000, ₹ 10,08,28,800 and ₹ 5,80,75,200 respectively. However, the cost of god sold is ₹ 2,88,00,000, ₹ 7,20,00,000 and ₹ 4,32,00,000 respectively.

In business, there's a saying "The packaging sells the product the first time, but what's inside sells the product a second time". Following the saying, the company has the policy of taking back the cartons of the products sold relating to Fancy fans to reduce the packaging cost. However, for smooth returning of cartons, the company has to incur certain carrier cost on its own which is ₹ 5,76,000 for the current year and allocating the same directly to the said product.

Some other information relating to each of the product lines is provided below:

	Fancy fans	Home decors	Assembled furniture
Items sold	12,09,600	1,05,98,400	29,37,600
Number of deliveries received	600	4,380	1,320
Number of purchase orders placed	720	1,680	720
Hours of shelf-stocking time	1,080	10,800	5,400

The company also provides the following basis of cost allocation:

Activity	Description of activity	Total Cost	Cost-allocation base
Delivery	Physical delivery and receipt of products	1,20,96,000	6,300 deliveries
Ordering	Placing of orders for purchases	74,88,000	3,120 purchase orders
Shelf stocking	Stocking of products in warehouse	82,94,400	17,280 hours of shelf-stocking time

The company wants you to FIGURE OUT the following to ascertain which of the product line is more profitable:

MULTIPLE CHOICE QUESTIONS

1. The total support cost and its percentage to the cost of goods sold would be:

   (a) ₹ 3,33,69,600 and 23.17%

   (b) ₹ 4,32,00,000 and 30%

   (c) ₹ 3,33,69,600 and 30%

   (d) ₹ 4,32,00,000 and 23.17%

2. Operating income as a percentage of revenues of each product line, namely Fancy fans, Home decors, Assembled furniture, when all the support costs are allocated on the basis of cost of goods sold would be:

   (a) 6.87%, 12.05% and 8.38% respectively

   (b) 12.05%, 6.87% and 8.38% respectively

   (c) 1.70%, 7.17% and 3.30% respectively

   (d) 7.17%, 3.30% and 1.70% respectively

3. The cost driver rate relating to Delivery, Ordering, Shelf stocking and Customer support would be:

   (a) Delivery- ₹ 1,920 per delivery, Ordering- ₹ 2,400 per purchase order, Shelf stocking- ₹ 480 per stocking hour and Customer support- ₹ 1 per item sold

   (b) Delivery- ₹ 2,400 per delivery, Ordering- ₹ 1,920 per purchase order, Shelf stocking - ₹ 480 per stocking hour and Customer support- ₹ 1 per item sold

   (c) Delivery - ₹ 1,920 per delivery, Ordering- ₹ 2,400 per purchase order, Shelf stocking - ₹ 480 per stocking hour and Customer support- ₹ 3 per item sold

   (d) Delivery- ₹ 480 per delivery, Ordering- ₹ 2,400 per purchase order, Shelf stocking - ₹1,920 per stocking hour and Customer support- ₹ 3 per item sold

4. Operating income of each product line, namely Fancy fans, Home decors, Assembled furniture, when all the support costs are allocated using an activity-based costing system would be:

   (a) ₹ 16,84,800, ₹ -2,05,92,000 and ₹ -7,92,000 respectively

   (b) ₹ 3,64,03,200, ₹ 12,14,20,800 and ₹ 5,88,67,200 respectively

   (c) ₹ 92,88,000, ₹ 2,88,28,800 and ₹ 1,48,75,200 respectively

   (d) ₹ 41,04,000, ₹ 6,04,800 and ₹ 50,83,200 respectively

5. Operating income as a percentage of revenues of each product line, namely Fancy fans, Home decors, Assembled furniture, when all the support costs are allocated using an activity-based costing system would be:

   (a) 4.42%, -20.42% and -1.36% respectively

   (b) 10.78%, 0.60% and 8.75% respectively

   (c) 24.39%, 28.59% and 25.61% respectively

   (d) 4.39%, 8.59% and -1.36% respectively

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) ₹ 4,32,00,000 and 30%

Reason:

Total support cost	**(₹)**
Cartons returned	5,76,000
Delivery	1,20,96,000
Ordering	74,88,000
Shelf stocking	82,94,400
Customer support (₹ 49,15,200 x 3)	1,47,45,600
Total support cost	4,32,00,000
	(₹)
Fancy fans	2,88,00,000
Home decors	7,20,00,000
Assembled furniture	4,32,00,000
Total cost of goods sold (COGS)	14,40,00,000

Percentage of support cost to the cost of goods sold (COGS):

$$= \frac{\text{Total support cost}}{\text{Total cost of goods sold (COGS)}} \times 100$$

$$= \frac{4,32,00,000}{14,40,00,000} \times 100 = 30\%$$

2. Option (c) 1.70%, 7.17% and 3.30% respectively

Reason:

Particulars	**Fancy Fans (₹)**	**Home decors (₹)**	**Assembled furniture (₹)**
Revenue: (A)	3,80,88,000	10,08,28,800	5,80,75,200
Cost of Goods sold (COGS): (B)	2,88,00,000	7,20,00,000	4,32,00,000
Support cost (30% of COGS): (C) (as calculated in i. above)	86,40,000	2,16,00,000	1,29,60,000

Total cost: (D) = {(B) + (C)}	3,74,40,000	9,36,00,000	5,61,60,000
Operating income: E= {(A)-(D)}	6,48,000	72,28,800	19,15,200
Operating income as a percentage of revenues: (E/A) × 100)	**1.70%**	**7.17%**	**3.30%**

3. **Option (a)** Delivery- ₹ 1,920 per delivery, Ordering- ₹ 2,400 per purchase order, Shelf stocking - ₹ 480 per stocking hour and Customer support - ₹ 1 per item sold

Reason:

Activity (1)	Total cost (₹) (2)	Cost allocation base (3)	Cost driver rate (4) = [(2) ÷ (3)]
Delivery	1,20,96,000	6,300 deliveries	₹ 1,920 per delivery
Ordering	74,88,000	3,120 purchase orders	₹ 2,400 per purchase order
Shelf-stocking	82,94,400	17,280 hours of shelf-stocking time	₹ 480 per stocking hour
Customer support	1,47,45,600	1,47,45,600 items sold	Re. 1 per item sold (given)

4. **Option (d)** ₹ 41,04,000, ₹ 6,04,800 and ₹ 50,83,200 respectively

Reason:

	Fancy Fans (₹)	Home decors (₹)	Assembled furniture (₹)
Revenues: (A)	3,80,88,000	10,08,28,800	5,80,75,200
Cost & Goods sold	2,88,00,000	7,20,00,000	4,32,00,000
Carton return costs (Directly attributable to Fancy fans)	5,76,000	0	0
Delivery cost (₹ 1,920 per delivery)	11,52,000 (600 x ₹ 1,920)	84,09,600 (4,380 x ₹ 1,920)	25,34,400 (1,320 x ₹ 1,920)
Ordering cost (₹ 2,400 per purchase order)	17,28,000 (720 x ₹ 2,400)	40,32,000 (1,680 x ₹ 2,400)	17,28,000 (720 x ₹ 2,400)
Shelf stocking cost	5,18,400	51,84,000	25,92,000

(₹ 480 per stocking hour)	(1,080 x ₹ 480)	(10,800 x ₹ 480)	(5,400 x ₹ 480)
Customer Support cost (₹ 1 per item sold)	12,09,600 (12,09,600 x ₹ 1)	1,05,98,400 (1,05,98,400 x ₹ 1)	29,37,600 (29,37,600 x ₹ 1)
Total Cost: (B)	3,39,84,000	10,02,24,000	5,29,92,000
Operating income: (C) = (A) - (B)	41,04,000	6,04,800	50,83,200

5. Option (b) 10.78%, 0.60% and 8.75% respectively

Reason:

	Fancy Fans (₹)	**Home decors (₹)**	**Assembled furniture (₹)**
Operating income (from iv. Above) (A)	41,04,000	6,04,800	50,83,200
Revenues (B)	3,80,88,000	10,08,28,800	5,80,75,200
Operating income as a percentage of revenues: (A/B) × 100)	**10.78%**	**0.60%**	**8.75%**

CASE SCENARIO 33

Mr. A works in a manufacturing company where he is paid bonus according to the Halsey 50% plan, besides the normal wages. The relevant data is as below:

Time Rate (per hour)	₹ 100
Time allowed	10 hours
Time taken	5 hours
Time saved	5 hours

Mr. A believes that his bonus under Halsey system is getting reduced by 50%, thus intending to shift towards Rowan Premium Plan.

MULTIPLE CHOICE QUESTIONS

You are required to calculate the total earnings of Mr. A as per Halsey plan and Rowan Premium plan & enumerate the reason for difference in both the earnings.

(a) Total earnings as per Halsey plan- ₹ 500 and as per Rowan Premium plan- ₹ 750. Earnings under Halsey Plan is lower than that of Rowan Premium plan as the bonus is getting reduced by 50%.

(b) Total earnings as per Halsey plan- ₹ 750 and as per Rowan Premium plan- ₹ 500. Earnings under Rowan Premium plan is lower than that of Halsey plan as the actual time taken is 50% of the time allowed.

(c) Total earnings as per Halsey plan- ₹ 750 and as per Rowan Premium plan- ₹ 750. When the actual time taken is 50% of the time allowed, the earnings under Halsey and Rowan Plans are equal.

(d) Total earnings as per Halsey plan- ₹ 250 and as per Rowan Premium plan- ₹ 250. Total earnings under both the Plans are equal as the time taken under both the plans are same.

ANSWERS TO MULTIPLE CHOICE QUESTIONS

Option (c)

Reason:

Calculation of total earnings:

As per Halsey 50% plan

= Time taken × Time rate + (50% of Time saved × Time rate)

= 5 hrs. × ₹ 100 + [1/2 × (5 hrs. × ₹ 100)]

= ₹ 500 + ₹ 250 **= ₹ 750**

As per Rowan Premium plan

$$=\text{Time taken} \times \text{Rate per hour} + \left(\frac{\text{Time Saved}}{\text{Time Allowed}} \times \text{Time taken} \times \text{Rate per hour}\right)$$

$$= 5 \text{ hours} \times ₹\ 100 + \left[\left(\frac{5 \text{ Hours}}{10 \text{ Hours}}\right) \times 5 \text{ hours} \times ₹\ 100\right]$$

= ₹ 500 + ₹ 250 **=** ₹ 750

When the actual time taken is 50% of the time allowed, the earnings under Halsey and Rowan Plans are equal.

CASE SCENARIO 34

EVS & Co. is a manufacturing concern engaged in the production and sale of finished goods. The company prepares its accounts annually, and the following figures have been extracted from the Trial Balance as on 31st March.

	Dr. (₹)	Cr. (₹)
Opening Inventories:		
Finished Stock	10,96,000	
Raw Materials	19,18,000	
Work-in-Process	27,40,000	
Office Appliances	2,38,380	
Plant & Machinery	63,08,850	
Building	27,40,000	
Sales		1,35,21,600
Sales Return and Rebates	1,91,800	
Cash discount allowed on sales	1,17,820	
Materials Purchased	43,84,000	
Freight incurred on Materials	2,19,200	
Purchase Returns		65,760
Direct employee cost	21,92,000	
Indirect employee cost	2,46,600	
Drawing and Designing cost	1,37,000	
Repairs and maintenance of factory	1,91,800	
Heat, Light and Power expenses	8,90,500	
Pollution Control Expenses	2,56,190	
Sales Commission	4,60,320	
Sales Promotion	3,08,250	
Distribution Deptt. - Salaries and Expenses	2,46,600	
Office - Salaries and Expenses	1,17,820	
Packing Cost to make the product marketable	3,15,100	

Printing and Stationery expenses	89,050	
Bank Charges paid	8,220	

The trial balance includes details relating to inventories, purchases, employee costs, factory overheads, selling and distribution expenses, and administrative expenses. The company also owns office appliances, plant and machinery, and buildings on which depreciation is to be charged at prescribed rates.

Additional information is provided regarding closing inventories, outstanding direct employee cost, allocation of heat, light and power expenses, and apportionment of depreciation on buildings among factory, office, and selling departments.

Further details are available as follows:

(i)	**Closing Inventories:**	
	Finished Goods	₹ 15,75,500
	Raw Materials	₹ 24,66,000
	Work-in-Process	₹ 26,30,400
(ii)	Outstanding direct employee cost	₹ 1,09,600
(iii)	Depreciation to be provided on:	
	Office Appliances	15%
	Plant and Machinery	40%
	Buildings	10%
(iv)	70% of the Heat, Light and Power expenses is related to the Factory and the remaining 30% is equally shared between the Office and Selling Department.	
	Depreciation on Buildings is to be distributed at a similar percentage between the Factory, Office and the Selling Department as that of the Heat, Light and Power.	

The management has requested the Costing Department to analyze the data and compute the following:

MULTIPLE CHOICE QUESTIONS

1. What is the Prime Cost of EVS & Co. for the year?

   (a) ₹ 84,02,780

   (b) ₹ 45,12,380

   (c) ₹ 76,21,980

   (d) ₹ 62,91,040

2. What is the Gross Works Cost after charging factory overheads and depreciation?

   (a) ₹ 1,06,18,320

   (b) ₹ 1,08,42,910

   (c) ₹ 1,04,61,320

   (d) ₹ 1,12,40,550

3. The Cost of Production for the year amounts to:

   (a) ₹ 1,05,70,920

   (b) ₹ 1,09,92,500

   (c) ₹ 1,10,36,700

   (d) ₹ 1,11,54,520

4. What is the Cost of Goods Sold after adjusting opening and closing finished goods?

   (a) ₹ 1,06,75,020

   (b) ₹ 1,08,32,620

   (c) ₹ 1,09,64,120

   (d) ₹ 1,00,91,420

5. The Cost of Sales of EVS & Co. is:

   (a) ₹ 1,19,33,610

   (b) ₹ 1,20,21,887

(c) ₹ 1,21,38,890

(d) ₹ 1,22,56,420

6. What is the total Selling and Distribution Expenses for the year?

(a) ₹ 16,24,840

(b) ₹ 17,01,260

(c) ₹ 17,89,510

(d) ₹ 15,04,945

7. What is the total Administration Expenses of the company?

(a) ₹ 4,25,522

(b) ₹ 4,92,300

(c) ₹ 5,16,420

(d) ₹ 5,41,800

8. The Net Profit of the company for the period is:

(a) ₹ 13,07,913

(b) ₹ 12,25,733

(c) ₹ 11,90,093

(d) ₹ 10,72,273

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) ₹62,91,040

2. Option (c) ₹1,04,61,320

3. Option (a) ₹1,05,70,920

4. Option (d) ₹1,00,91,420

5. Option (b) ₹1,20,21,887

Reason (1 to 5):

Working Note

Schedule of Cost of Sales

Particulars	(₹)	(₹)
Raw Material (Inventory opening balance)		19,18,000
Add: Material Purchased	43,84,000	
Add: Freight on Material	2,19,200	
Less: Purchase Returns	(65,760)	45,37,440
		64,55,440
Less: Closing Raw Material Inventory		(24,66,000)
Materials consumed in Production		39,89,440
Direct employee cost (₹ 21,92,000 + ₹ 1,09,600)		23,01,600
Prime Cost		**62,91,040**
Factory Overheads:		
Indirect employee cost	2,46,600	
Drawing and Designing cost	1,37,000	
Repairs and maintenance of factory	1,91,800	
Heat, Light and Power (₹ 8,90,500 × 70%)	6,23,350	
Pollution Control Expenses	2,56,190	
Depreciation of Plant (40% of ₹ 63,08,850)	25,23,540	
Depreciation of Building (10% of ₹ 27,40,000 × 70%)	1,91,800	41,70,280
Gross Works Cost		**1,04,61,320**
Add: Opening Work-in-Process inventory		27,40,000
Less: Closing Work-in-Process inventory		(26,30,400)
Cost of production		**1,05,70,920**
Add: Opening Finished Goods inventory		10,96,000
Less: Closing Finished Goods inventory		(15,75,500)
Cost of Goods Sold		**1,00,91,420**

Add: Administration Expenses [See Schedule (iii)]		4,25,522
Add: Selling and Distribution Expenses [See Schedule (ii)]		15,04,945
Cost of Sales		**1,20,21,887**

Note: Cash discount allowed on sales will not form part of Cost Sheet.

6. Option (d) ₹15,04,945

Schedule of Selling and Distribution Expenses

Particulars	(₹)
Sales Commission	4,60,320
Sales Promotion	3,08,250
Distribution Deptt. - Salaries and Expenses	2,46,600
Heat, Light and Power (₹ 8,90,500 x 15%)	1,33,575
Depreciation of Building (10% of ₹ 27,40,000 × 15%)	41,100
Packing Cost to make the product marketable	3,15,100
	15,04,945

7. Option (a) ₹ 4,25,522

Reason:

Schedule of Administration Expenses

Particulars	(₹)
Office Salaries and Expenses	1,17,820
Depreciation of Office Appliances (₹ 2,38,380 x 15%)	35,757
Depreciation of Building (10% of ₹ 27,40,000 × 15%)	41,100
Heat, Light and Power (₹ 8,90,500 x 15%)	1,33,575
Printing and Stationery expenses	89,050
Bank Charges paid	8,220
	4,25,522

8. (c) ₹ 11,90,093

Reason:

Profit and Loss Statement of EVS & Co. for the year ended 31st March

Particulars	(₹)	(₹)
Gross Sales	1,35,21,600	
Less: Returns and rebates	(1,91,800)	1,33,29,800
Less: Cost of Sales [See Schedule (i)]		(**1,20,21,887**)
Net Operating Profit		13,07,913
Less: Cash discount allowed on sales		(1,17,820)
Net Profit		**11,90,093**

CASE SCENARIO 35

ALZO Toys Ltd. is an exciting new player in the toy manufacturing industry, founded with a passion for creating high-quality, engaging, and educational toys. The company aims to make a positive impact on the industry and also on the development of young minds through imaginative play.

The following statement provides a comprehensive analysis of the various cost variances for a particular period, outlining the differences between the expected costs and the actual expenditures incurred.

Cost variances	**(₹)**
Direct material price	25,000F
Direct material usage	3,750A
Direct labour rate	5,000A
Direct labour efficiency	3,750A
Variable overhead expenditure	15,000A
Variable overhead efficiency	1,875A
Fixed overhead expenditure	62,500F

The budget for the same period reflected the following data:

Production volume	**7,500 units**
Direct materials purchased	3,750kg
Direct materials used	3,750kg
Direct material cost	₹ 1,12,500
Direct labour hours	5,625 hours
Direct labour cost	₹ 1,12,500
Variable overhead cost	₹ 56,250
Fixed overhead cost	₹ 1,12,500

Some other information relating to the same period is provided below:

(i) Stocks of raw materials and finished goods are valued at a predetermined standard cost for easier cost comparison and reporting.

(ii) The actual number of units produced was 7,750.

(iii) The direct materials purchased were 5,000 kg.

From the information given above, you are required to figure out the following in actual:

MULTIPLE CHOICE QUESTIONS

1. Quantity of materials used and direct material cost-
   (a) 3,875 kg and ₹ 1,50,000
   (b) 3,875 kg and ₹ 1,25,000
   (c) 4,000 kg and ₹ 1,25,000
   (d) 4,000 kg and ₹ 1,50,000
2. Direct labour hours-
   (a) 7,937.50 hours
   (b) 6,000 hours
   (c) 5,812.50 hours
   (d) 5,000 hours
3. Direct labour cost-
   (a) ₹ 1,16,250
   (b) ₹ 1,25,000
   (c) ₹ 1,55,000
   (d) ₹ 1,63,750
4. Variable overhead cost-
   (a) ₹ 75,000
   (b) ₹ 73,125
   (c) ₹ 60,000
   (d) ₹ 58,125

5. Fixed overhead cost-

(a) ₹ 1,75,000

(b) ₹ 1,12,500

(c) ₹ 62,500

(d) ₹ 50,000

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) 4,000 kg and ₹ 1,25,000

Reason:

Calculation of actual quantity of materials used:

Standard quantity of material used per units of output

$$= \left(\frac{\text{budgeted usage}}{\text{budgeted production}}\right)$$

$$= \left(\frac{3{,}750 \text{ kg}}{7{,}500 \text{ units}}\right) = 0.5 \text{ kg}$$

$$\text{Standard price} = \left(\frac{\text{budgeted material cost}}{\text{budgeted usage}}\right)$$

$$= \left(\frac{₹\ 1{,}12{,}500}{3{,}750 \text{ kg}}\right) = ₹\ 30$$

Material usage variance = (Std. qty. for actual output - Actual qty.) × Std. price

₹ 3,750A = [(7,750 x 0.5kg) - AQ] x ₹ 30

- ₹ 3,750 = ₹ 1,16,250 - 30AQ

30AQ = ₹ 1,20,000

AQ = 4,000 kg

Actual quantity of materials used = **4,000 kg**

Calculation of actual direct material cost:

Material Price Variance	= Actual Quantity purchased (AQ) x {Std. Price (SP) – Actual Price(AP)}
₹ 25,000F	= 5,000 kg x (₹ 30 - AP)
₹ 25,000	= ₹ 1,50,000 - 5,000 AP
5,000 AP	= ₹ 1,25,000
AP	= ₹ 25
Actual direct material cost	= 5,000 kg x ₹ 25 = **₹ 1,25,000**

2. Option (b) 6,000 hours

Reason:

$$\text{Standard hours per unit of output} = \left(\frac{\text{Budgeted hours}}{\text{Budgeted output}}\right)$$

$$= \left(\frac{5{,}625 \text{ hours}}{7{,}500 \text{ units}}\right) = 0.75 \text{ hours}$$

$$\text{Standard wage rate} = \left(\frac{\text{budgeted labour cost}}{\text{budgeted hours}}\right)$$

$$= \left(\frac{₹\ 1{,}12{,}500}{5{,}625 \text{ hours}}\right) = ₹\ 20$$

Labour Efficiency Variance	= Std. Rate (SR) x {Std. Hours (SH) – Actual Hours (AH)}
₹ 3,750A	= ₹ 20 x [(7,750 x 0.75 hours) - AH]
- ₹ 3,750	= ₹ 1,16,250 - 20AH
20AH	= ₹ 1,20,000
AH	= 6,000
Actual Hours	= **6,000**

3. Option (b) ₹ 1,25,000

Reason:

Labour Cost Variance = [Standard Labour Cost – Actual Labour Cost]

= Labour Rate Variance + Labour Efficiency Variance

= [Standard Labour Cost – Actual Labour Cost]

₹ 5,000A + ₹ 3,750A = (7,750 x 0.75 hours x ₹ 20) - Actual Labour Cost

- ₹ 5,000 - ₹ 3,750 = ₹ 1,16,250 - Actual Cost

Actual Labour Cost = ₹ 1,16,250 + ₹ 8,750

Actual Labour Cost = ₹ **1,25,000**

4. Option (a) ₹ 75,000

Reason:

Standard variable overhead per unit

$$= \left(\frac{\text{Budgeted variable overheads cost}}{\text{Budgeted output}}\right)$$

$$= \left(\frac{₹\ 56,250}{7,500\ \text{units}}\right) = ₹\ 7.50$$

Total Variable Overhead Variance = [Standard Variable Overhead – Actual Variable Overhead]

Variable Overhead Expenditure Variance + Variable Overhead Efficiency Variance = [Standard Variable Overhead – Actual Variable Overhead]

₹ 15,000A + ₹ 1,875A = (7,750 x ₹ 7.50) - Actual Variable Overhead

- ₹ 15,000 - ₹ 1,875 = ₹ 58,125 - Actual Variable Overhead

Actual Variable Overhead = ₹ 58,125 + ₹ 16,875

Actual Variable Overhead = **₹ 75,000**

5. Option (d) ₹ 50,000

Reason:

Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads - Actual Fixed Overheads

₹ 62,500 F = ₹ 1,12,500 - Actual Fixed Overheads

Actual Fixed Overheads **= ₹ 50,000**

CASE SCENARIO 36

Arnav Ltd. manufactures chemical solutions used in paint and adhesive products. Chemical solutions are produced in different processes. Some of the processes are hazardous in nature which may results in fire accidents.

At the end of the last month, one fire accident occurred in the factory. The fire destroyed some of the paper files containing records of the process operations for the month.

You being an associate to the Chief Manager (Finance), are assigned to prepare the process accounts for the month during which the fire occurred. From the documents and files of other sources, following information could be retrieved:

Opening work-in-process at the beginning of the month was 500 litres, 80% complete for labour and 60% complete for overheads. Opening work-in-process was valued at ₹2,78,000.

Closing work-in-process at the end of the month was 100 litres, 20% complete for labour and 10% complete for overheads.

Normal loss is 10% of input (fresh) and total losses during the month were 800 litres partly due to the fire damage.

Output transferred to finished goods was 3,400 litres.

Losses have a scrap value of ₹20 per litre.

All raw materials are added at the commencement of the process.

The cost per equivalent unit is ₹660 for the month made up as follows:

Raw Material ₹300 Labour ₹200 Overheads ₹160

The company uses FIFO method to value work-in-process and finished goods.

MULTIPLE CHOICE QUESTIONS

The following information are required for managerial decisions:

1. How much quantity of raw material introduced during the month?
   (a) 4,300 Litres
   (b) 3,500 Litres
   (c) 4,200 Litres
   (d) 3,800 Litres
2. The Quantity of normal loss and abnormal loss are:
   (a) Normal loss- 380 litres & Abnormal loss- 420 litres
   (b) Normal loss- 350 litres & Abnormal loss – 450 litres
   (c) Normal loss- 430 litres & Abnormal loss – 370 litres
   (d) Normal loss- 420 litres & Abnormal loss – 380 litres.
3. Value of raw material added to the process during the month is:
   (a) ₹10,10,000
   (b) ₹10,33,600
   (c) ₹10,18,400
   (d) ₹10,20,000
4. Value of labour and overhead in closing Work-in-process are:
   (a) ₹4,000 & ₹1,600 respectively
   (b) ₹20,000 & ₹16,000 respectively
   (c) ₹16,000 & ₹9,000 respectively
   (d) ₹13,200 & ₹6,600 respectively
5. Value of output transferred to finished goods is:
   (a) ₹22,57,200
   (b) ₹20,06,400

(c) ₹22,44,000

(d) ₹19,27,200

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) 3,800 Litres

Reason:

Inflow into process	Litres	Outflow from process	Litres
Opening WIP	500	Transferred to finished goods	3,400
Quantity introduced (Balancing figure)	3,800	Total loss	800
		Closing WIP	100
	4,300		4,300

2. Option(a) Normal loss- 380 litres & Abnormal loss- 420 litres

Reason:

Total loss	800 litres
Normal loss (10% of fresh input i.e. 3,800)	380 litres
Abnormal loss	420 litres

3. Option (b) ₹10,33,600

Reason:

Calculation of Equivalent production units

Input Details	Units	Output Particulars	Units	Equivalent Production					
				Material		Labour		Overheads	
				%	Units	%	Units	%	Units
Opening WIP	500	From Opening WIP	500	-	-	20	100	40	200
Fresh inputs	3,800	From fresh units	2900	100	2900	100	2900	100	2900
		Normal loss	380	-		-		-	
		Closing WIP	100	100	100	20	20	10	10
		Abnormal loss	420	100	420	100	420	100	420
	4,300		4,300		3,420		3,440		3,530

Value of raw materials introduced during the month

	Equivalent units	Cost per EU (₹)	Total cost (₹)
Total value of raw material	3420	300	10,26,000
Add: Scrap value of normal loss	380	20	7,600
Value of raw material introduced			**10,33,600**

4. Option (a) ₹4,000 & ₹1,600 respectively

Reason:

Value of labour and overhead in closing Work in process

Cost elements	Equivalent units	Cost per EU (₹)	Total cost (₹)
Labour	20	200	**4,000**
Overheads	10	160	**1,600**

5. Option (c) ₹ 22,44,000

Value of output transferred to finished goods

Output transferred (Units) × Equivalent cost per unit

3,400 Litres × ₹ 660 = ₹ 22,44,000

CASE SCENARIO 37

M Ltd. is producing a single product and may expand into product diversification in next one to two years. M Ltd. is amongst a labour-intensive company where majority of processes are done manually. Employee cost is a major cost element in the total cost of the company. The company conventionally uses performance parameters Earnings per manshift (EMS) to measure cost paid to an employee for a shift of 8 hours, and Output per manshift (OMS) to measure an employee's output in a shift of 8 hours.

The Chief Manager (Finance) of the company has emailed you few information related to the last month. The email contains the following data related to the last month:

During the last month, the company has produced 2,34,000 tonnes of output. Expenditures for the last months are:

(i) Raw materials consumed ₹50,00,000

(ii) Power consumed 13,000 Kwh @ ₹8 per Kwh to run the machines for production.

(iii) Diesels consumed 2,000 litres @ ₹93 per litre to run power generator used as alternative or backup for power cuts.

(iv) Wages & salary paid – ₹6,40,00,000

(v) Gratuity & leave encashment paid – ₹64,20,000

(vi) Hiring charges paid for HEMM- ₹30,00,000. HEMM are directly used in production.

(vii) Hiring charges paid for cars used for official purpose – ₹66,000

(viii) Reimbursement of diesel cost for the cars – ₹22,000

(ix) The hiring of cars attracts GST under RCM @5% without credit.

(x) Maintenance cost paid for weighing bridge (used for weighing of final goods at the time of dispatch) – ₹12,000

(xi) AMC cost of CCTV installed at weighing bridge (used for weighing of final goods at the time of dispatch) and factory premises is ₹8,000 and ₹18,000 per month respectively.

(xii) TA/ DA and hotel bill paid for sales manager- ₹36,000

(xiii) The company has 1,800 employees works for 26 days in a month.

MULTIPLE CHOICE QUESTIONS

You are asked to calculate the followings:

1. What is the amount of prime cost incurred during the last month:
   (a) ₹7,54,20,000
   (b) ₹7,57,10,000
   (c) ₹7,56,06,000
   (d) ₹7,87,10,000
2. What is the total and per shift cost of production for last month:
   (a) ₹7,87,10,000 and ₹336.37 respectively
   (b) ₹7,87,10,000 and ₹1,681.84 respectively
   (c) ₹7,87,28,000 and ₹1,682.22 respectively
   (d) ₹7,87,28,000 and ₹336.44 respectively
3. What is the value of administrative cost incurred during the last month:
   (a). ₹ 92,400
   (b). ₹ 88,000
   (c). ₹1,48,400
   (d). ₹1,44,000
4. What is the value of selling and distribution cost and total cost of sales:
   (a). ₹36,000 & ₹7,88,76,400 respectively
   (b). ₹56,000 & ₹7,88,76,400 respectively
   (c). ₹36,000 & ₹7,88,72,000 respectively

(d). ₹56,000 & ₹7,88,72,000 respectively

5. What is the value EMS and OMS for the last month:

(a). ₹1,504.70 & 5 tonnes respectively

(b). ₹1,367.52 & 5 tonnes respectively

(c). ₹1,504.70 & 4.37 tonnes respectively

(d). ₹1,367.52 & 4.37 tonnes respectively

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) ₹7,87,10,000

Reason:

2. Option (c) ₹7,87,28,000 and ₹1,682.22 respectively

Reason:

Please refer cost sheet below for cost of production

Cost of production per manshift =

Cost of production ÷ Total manshift

₹ 7,87,28,000 ÷ 46,800 = ₹1,682.22

3. Option (a) ₹ 92,400

Reason:

Car hire charges including GST @5%, please refer the cost sheet

4. Option (b) ₹56,000 & ₹7,88,76,400 respectively

Reason:

Selling and distribution cost includes the following:

Maintenance cost for weighing bridge	12,000
AMC cost of CCTV installed at weigh bridge	8,000
TA/ DA & hotel bill of sales manager	36,000
	56,000

For Cost of Sale please refer the cost sheet

5. Option (a) ₹1,504.70 & 5 tonnes respectively

Manshift = 1,800 employees × 26 days = 46,800 manshifts

Computation of earnings per manshift (EMS):

$$EMS = \frac{\text{Total employee benefits paid}}{\text{Manshift}} = \frac{₹\ 7,04,20,000}{46,800} = ₹\ 1504.70$$

Computation of Output per manshift (OMS):

$$OMS = \frac{\text{Total Output/ Production}}{\text{Manshift}} = \frac{2,34,000\ \text{Tonne}}{46,800} = 5\ \text{tonnes}$$

Workings

Cost Sheet of M Ltd. for the last month

Particulars	**Amount (₹)**	**Amount (₹)**
Materials consumed		50,00,000
Wages & Salary	6,40,00,000	
Gratuity & leave encashment	64,20,000	7,04,20,000
Power cost (13,000 kwh × ₹8)	1,04,000	
Diesel cost (2,000 ltr × ₹93)	1,86,000	2,90,000
HEMM hiring charges		30,00,000
Prime Cost		**7,87,10,000**
AMC cost of CCTV installed at factory premises		18,000
Cost of Production/ Cost of Goods Sold		**7,87,28,000**
Hiring charges of cars	66,000	
Reimbursement of diesel cost	22,000	
	88,000	
Add: GST @5% on RCM basis	4,400	92,400
Maintenance cost for weighing bridge	12,000	
AMC cost of CCTV installed at weigh bridge	8,000	20,000
TA/ DA & hotel bill of sales manager		36,000
Cost of Sales		**7,88,76,400**

CASE SCENARIO 38

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:

MULTIPLE CHOICE QUESTIONS

1. 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

2. 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

3.. 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

4. 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

5. 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

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ₹ 322.22 Crore

Reason:

$$\text{Revised Sale} = \frac{\text{Revised Fixed Cost + Expected Profit}}{\text{P/V Ratio}}$$

$$= \{₹115 + (20+10)\} \div 45\% = ₹ 322.22 \text{ crores}$$

2. Option (d) ₹ 255.56 Crore

Revised Break – even Point $= \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$

= ₹115 Crore ÷ 45% = ₹255.56 Crore

(Refer working notes)

3. Option (d) ₹ 66.66 Crore

Reason:

Revised Margin of Safety = Revised Sales – Revised Break–even Sales

= ₹ 322.22Crores – ₹ 255.56Crores

= ₹ 66.66 Crores.

4. Option (c) ₹ 20 Crore & ₹ 30 Crore respectively

Reason:

₹ 20 Crore & ₹ 30 Crore respectively (Refer working note)

5. Option (a) ₹ 230 Crore & ₹ 292.22

Total cost in last year = ₹230 Crore

Total cost in coming year = Variable Cost + Fixed Cost

Revised sales × 55% + 115 Crore

= ₹ 322.22 Crore × 55% + ₹ 115 Crore = ₹ 292.22 Crore

Working Note

Present Sales and Profit

Total Sales	=	Break – even Sales + Margin of Safety
	=	₹ 200 Crores + ₹ 50 Crores
	=	₹ 250 Crores
P/V Ratio	=	40%
Variable Cost	=	60% of Sales
	=	₹ 250 Crores × 60%
	=	₹ 150 Crores

Fixed Cost = Break – even Sales × P/V Ratio

= ₹ 200 Crores × 40%

= ₹ 80 Crores

Total Cost = ₹ 150 Crores + ₹ 80 Crores

= ₹ 230 Crores

Profit = Total Sales – Total Cost

= ₹ 250 Crores – ₹ 230 Crores

= ₹ 20 Cores

Revised Sales (₹ in Crores)

Present Fixed Cost	80.00
Increase in Fixed Cost	20.00
Interest at 15 *per cent* 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

New P / V Ratio = $\frac{₹\ 41.40}{₹\ 92.00}$ x 100

= 45%

CASE SCENARIO 39

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:

MULTIPLE CHOICE QUESTIONS

1. 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)

2. 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)

3. 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)

4. 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)

5. 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)

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) ₹ 10,880 (A)

Reason:

Variable Overhead Cost Variance = Standard Variable Overheads for Production – Actual Variable Overheads

= ₹ 44,800 – ₹ 55,680

= ₹ 10,880 (A)

2. Option (c) ₹ 21,800 (A)

Reason:

Fixed Overhead Volume Variance = Absorbed Fixed Overheads – Budgeted Fixed Overheads

= ₹ 87,200 – ₹ 1,09,000

= **₹ 21,800 (A)**

3. Option (a) ₹ 21,520 (A)

Reason:

Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads – Actual Fixed Overheads

= ₹ 10.9 × 10,000 units – ₹ 1,30,520

= **₹ 21,520 (A)**

4. Option (b) ₹ 5,450 (A)

Reason:

Calendar Variance = Possible Fixed Overheads – Budgeted Fixed Overheads

= ₹ 1,03,550 – ₹ 1,09,000

= **₹ 5,450 (A)**

5. Option (a) ₹ 43,320 (A)

Reason:

Fixed Overhead Cost Variance = Absorbed Fixed Overheads – Actual Fixed Overheads

= ₹ 87,200 – ₹ 1,30,520

= ₹ 43,320 (A)

WORKING NOTE

Fixed Overheads $= \frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ = 12,00,000 ÷ 1,20,000	₹ 10.00
Fixed Overheads element in *Semi-Variable* Overheads i.e. 60% of ₹ 1,80,000	₹ 1,08,000
Fixed Overheads $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ ₹ 1,08,000/1,20,000	₹ 0.90
Standard Rate of Absorption of Fixed Overheads *per unit* (₹ 10.00 + ₹ 0.90)	₹ 10.90
Fixed Overheads Absorbed on 8,000 units @ ₹10.90	₹ 87,200
Budgeted Variable Overheads	₹ 6,00,000
Add: Variable element in Semi-Variable Overheads 40% of ₹ 1,80,000	₹ 72,000
Total Budgeted Variable Overheads	₹ 6,72,000
Standard Variable Cost per unit $= \frac{\text{Budgeted Variable Overheads}}{\text{Budgeted Output}}$	₹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 $= \frac{\text{BudgetedFixedOverheads}}{\text{BudgetedDays}} \times \text{ActualDays}$ = 1,09,000/20 days ×19 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

CASE SCENARIO 40

Tropic Pvt Ltd was engaged in the business of manufacturing Product P. The product P required 2 units of Material R. The company intends to sell 24,000 units of Product P and does not wish to retain any closing stock. However, the opening stock of Product P is 4,000 units. Raw Material R has to be procured after considering the opening stock of R amounting to 10,000 units. The technical team further confirms that the yield in the course of manufacture of Product P is 80% of the input.

The company presently procures its annual requirement of materials on a quarterly basis from its regular supplier enjoying a discount of 2.5% on the invoice price of the material of ₹ 20 per unit. Every time the company places orders for Material R, it incurs ₹ 125 for each of the order placed. The company also has taken a rented warehouse for storing material R and the annual cost of storage is ₹ 10 per unit. The company appointed Mr. T a Chartered Accountant to review the cost of inventory and provide measures of improvement of cost. After reviewing the material purchase and consumption pattern, Mr. T suggested that the implementation of Wilson's EOQ would be beneficial to the company. He emphasized that the change in the quantity ordered would result in reduction of inventory carrying costs.

Mr. T further reviewed the labour costing and identified that the employees were paid overtime wages to ensure timely completion of projects. Overtime wages comprised of daily wage and 100% of daily wages as overtime premium. Based on the cost record it was understood that every month had 180 hours of regular working hours which was remunerated at ₹ 200 per hour and Overtime of 20 hours which was remunerated at ₹ 400 per hour. Mr. T suggested that the above time taken may be considered as standard and a scheme of Incentive be introduced to reduce overtime cost. He further indicated that Rowan scheme of incentive be used to measure performance and the improved productivity per hour would be 125 units per hour.

In this regard, address the following queries in line with the suggestions provided by Mr. T to Tropic Pvt Ltd.

MULTIPLE CHOICE QUESTIONS

1. The annual requirement of Material R to meet the target sales of 24,000 units of Product P is:

   (a) 48,000 units

   (b) 60,000 units

   (c) 40,000 units

   (d) 50,000 units

2. The ordering quantity as per the current inventory policy and the proposed Wilson's Economic order quantity of Material R are:

   (a) Order Quatity as per the current inventory policy – 10,000 units & Economic Order Quantity – 1,000 units

   (b) Order Quantity as per the current inventory policy – 15,000 units & Economic Order Quantity – 1,225 units

   (c) Order Quantity as per the current inventory policy – 12,000 units & Economic Order Quantity – 1,095 units

   (d) Order Quantity as per the current inventory policy – 12,500 units & Economic Order Quantity – 1,118 units

3. The net savings to inventory cost on migration from the current inventory policy to the Wilson's Economic Order Quantity policy would be:

   (a) Savings from EOQ as compared to current discount policy – ₹ 26,820

   (b) Savings from EOQ as compared to current discount policy – ₹ 20,500

   (c) Savings from EOQ as compared to current discount policy – ₹ 33,253

   (d) Savings from EOQ as compared to current discount policy – ₹ 25,546

4. Incentive payable under the Rowan Incentive scheme amounts to:

   (a) ₹ 7,500

(b) ₹ 6,400

(c) ₹ 6,000

(d) ₹ 8,000

5. The savings in labour cost achieved by implementation of incentive scheme over the overtime payments amounts to:

(a) ₹ 9,600

(b) ₹ 5,600

(c) ₹ 8,000

(d) ₹ 3,200

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) 40,000 units.

Reason:

Projected Sales of Product P	– 24,000 units
Less: Opening stock of Product P	– (4,000 units)
Product P to be produced	– 20,000 units
Raw Material required	– 50,000 units (20,000 x 2/80% yield)
Opening stock of Material R available	– 10,000 units
Material to be procured	– 40,000 units.

2. Option (a)Order Quantity as per the current inventory policy – 10,000 units and EOQ – 1,000 units

Reason:

Annual requirement - Procurement	- 40,000 units
Order Quantity as per the current inventory policy (Quarterly)	- 10,000 units
Ordering Cost	- ₹125 per order
Carrying Cost	- ₹ 10 per unit p.a.
EOQ	- 1,000 units.

3. Option (b) Savings from EOQ as Compared to current discount policy – ₹ 20,500

Reason:

Associated Costs under EOQ:

Ordering Costs = No. of orders x Ordering cost per order

No of orders = Annual Requirement/ EOQ (or) current order quantity

Hence No of orders = 40

Therefore Ordering Cost = 40 x 125 = ₹ 5,000.

Carrying cost = Average Inventory x Carrying cost per unit per annum

Average Inventory = (EOQ/ current order quantity)/2

= 1,000/2 = 500

Carrying cost = 500 x 10 = ₹ 5,000

Associated Costs under EOQ = Ordering cost + Carrying Cost

= ₹ 10,000 A

Associated Costs under current inventory policy:

No of orders	= 4 (Quarterly)	
Ordering cost	= 4 x 125 = ₹ 500	
Average inventory	= 10,000/2 = 5,000	
Carrying cost	= 5,000x10 = 50,000	
Associated Costs	= 50,000+500 = 50,500	
Less: Discount	= 20,000	
Net cost	= 30,500.	B

Incremental Cost = B – A = 20,500

4. Option (b) ₹ 6,400

Reason:

Time taken under the Overtime regime 180 Hours + 20 Hours overtime = 200 Hours

Time to be taken under the Incentive regime

Units to be produced	= 20,000 units
Units produced per hour under incentive scheme	= 125 units
Time taken	= 160 Hours
Time saved = 200 – 160	= 40 hours.

Incentive under Rowan scheme = (Time saved/Time allowed) x time taken x Rate

= (40/200) x 160x200 = ₹ 6,400.

5. Option (b) ₹ 5,600

Cost under the Overtime scheme:

Base wage	= 200 x 200 = 40,000
OT Premium	= 20 x 200 = 4,000
Total Wages under Overtime scheme	= 44,000

Cost under Incentive scheme:

Base Wage = 160 hours x 200	= 32,000
Incentive	= 6,400
Total wages paid	= 38,400

Savings in Incentive scheme over Overtime scheme = ₹ 5,600.

CASE SCENARIO 41

XYZ Manufacturing Pvt. Ltd. is a prominent company in the electric appliances industry, known for producing a diverse range of high-quality products. The company has built a reputation for reliability and innovation in the manufacturing of household appliances, including fans, mixers, and heaters. XYZ Manufacturing Pvt. Ltd. is dedicated to delivering products that meet the needs of its customers while adhering to the highest standards of quality and performance.

The company operates a state-of-the-art factory that is fully equipped with advanced machinery and technology to ensure efficient and consistent production. The factory operates 25 days a month, running multiple shifts to meet the growing demand for its products. The company have spare capacity to additional orders. Each product type—fans, mixers, and heaters—undergoes a meticulous manufacturing process that includes assembly, quality testing, and packaging.

Cost Category	Amount (₹)
Fixed Costs (per month)	
Factory Rent	₹ 3,00,000
Depreciation	₹ 2,00,000
Administrative Expenses	₹ 1,00,000
Salaries	₹ 4,00,000
Total Fixed Costs	₹ 10,00,000
Number of units produced per month (Note: Last month there was an additional special order of 2000 units which resulted in higher production)	10,000 units
Selling price per unit	₹ 1,500

Additional Info: Raw Materials include Copper, Plastic, and Other Materials. The per unit cost of Copper is ₹ 80 more than the cost of Plastic, while the cost of Other Materials is twice that of Plastic. And the total Raw Material Cost per unit is ₹ 210 more than the combined cost of Copper & Plastic.

The Labour Hour Rate is ₹ 100 per hour. The total labour hours used in the last month were 36,000 Hours. The Utilities Cost per unit is ₹ 100, and the Packaging Cost per unit is ₹ 50. Being a finance manager of the company, you are required to answer the following:

MULTIPLE CHOICE QUESTIONS

1. Calculate the contribution margin per unit.
   (a) ₹ 550
   (b) ₹ 600
   (c) ₹ 650
   (d) ₹ 700
2. Determine the break-even point in sales revenue.
   (a) ₹ 31,28,593
   (b) ₹ 25,85,153
   (c) ₹ 27,27,025
   (d) ₹ 27,05,983
3. If the company wants to achieve a target profit of ₹ 5,00,000, what should be the sales volume (in units)?
   (a) 2,000 units
   (b) 2,727 units
   (c) 2,750 units
   (d) 3,000 units
4. What would be the impact on the break-even point if the variable cost per unit increases by 10%?
   (a) 2,178 units
   (b) 2,198 units
   (c) 2,248 units
   (d) 2,258 units

5. Calculate the margin of safety in percentage if the company sells 4,000 units if the variable cost per unit increases by 10%

(a) 44.85%

(b) 42.55%

(c) 45.05%

(d) 45.75%

ANSWERS TO MULTIPLE CHOICE QUESTIONS

Answer

1. Option (a) ₹ 550

Reason:

Contribution Margin per Unit = Selling Price per Unit - Variable Cost per Unit

= Variable Cost per unit = ₹ 500*+ ₹ 300**+ ₹ 100+ ₹ 50

Contribution Margin per Unit = ₹ 1,500 - ₹ 950 = ₹ 550

*Raw Material Cost Calculation

Let the cost of Plastic be x

The cost of Copper is ₹ 80 more than the cost of Plastic: Cost of Copper

= x + 80

The cost of Other Materials is twice that of Plastic: Cost of Other Materials = 2x

The total Raw Material Cost per unit is ₹ 210 more than the combined cost of Copper & Plastic: x + (x+80) + 2x = (x + (x+80)) + 210

Solving for X = 105

Now, calculate the total cost of Raw Materials:

105 + (105+80) +210 = 500

So, the total cost of Raw Materials is ₹ 500.

** Labour Cost Calculation

The Labour Hour Rate is ₹ 100 per hour.

The total labour hours used in the last month were 36,000 hours.

The production units last month were 12,000 units (10000 normal units plus 2000 special order).

Total Labour Cost = Labour Hour Rate × Total Labour Hours

Total Labour Cost= ₹ 100 /hour × 36,000 hours = ₹ 3,600,000

Per Unit Labour Cost = Total Labour Cost/Production Units

Per Unit Labour Cost = ₹ 3,600,000/12000

Per Unit Labour Cost = ₹ 300

So, the per unit labour cost is ₹ 300.

2. Option (c) ₹ 27,27,025

Reason:

- Break-even Point (Sales Revenue) = Total Fixed Costs / Contribution Margin Ratio
- Contribution Margin Ratio = Contribution Margin per Unit / Selling Price per Unit
- = ₹ 550 / ₹ 1,500 = 0.3667
- Break-even Point = ₹ 10,00,000 / 0.3667 ≈ ₹ 27,27,025

3. Option (b) 2,727 units

Reason:

- Required Sales Volume (Units) = (Total Fixed Costs + Target Profit) / Contribution Margin per Unit
- = (₹ 10,00,000 + ₹ 5,00,000) / ₹ 550 ≈ 2,727.27 units ≈ 2,727 units (rounded up)

4. Option (b) 2,198 units

Reason:

- New Variable Cost per Unit = ₹ 950 + 10% of ₹ 950 = ₹ 950 + ₹ 95 = ₹ 1,045

- New Contribution Margin per Unit = ₹ 1,500 - ₹ 1,045 = ₹ 455
- New Break-even Point (Units) = Total Fixed Costs / New Contribution Margin per Unit
- = ₹ 10,00,000 / ₹ 455 ≈ 2198 units

5. Option (c) 45.05%

Reason:

- Margin of Safety (Units) = Actual Sales - Break-even Sales
- = 4,000 - 2198 = 1,802 units
- Margin of Safety (%) = (Margin of Safety in Units / Actual Sales in Units) * 100
- = (1,802 / 4,000) * 100 ≈ 45.05%

CASE SCENARIO 42

Mr. Vikas, a toy importer has understood the importance of manufacturing in India. He is backed up by the new govt. policies that motivate him to manufacture in India. As per the custom department any import made for the manufacturing under "Made in India", custom duty will be refunded upto 80%. Vikas decided not to import toy from China anymore, instead import raw material from Srilanka, for the manufacturing of toys in India. Under an agreement of Govt. Of India with Srilankan Govt., any import from Srilanka will receive tax benefits.

Vikas ordered material Xendga & material Zenga from Srilanka. Details are given below:-

	Srilankan Rupees (SLR)
Material Xendga (12,000 units * 125 SLR)	15,00,000
Material Zenga (8,000 units * 225 SLR)	18,00,000
Factory cost	33,00,000
Add: Containers cost	2,00,000
Add: Freight upto loading shipment on ship (paid by exporter)	50,000
F.O.B.	35,50,000

- Ocean Freight is $ 2,000
- Insurance is $ 1,500

When shipment reached India, it was unloaded at Chennai port. Vikas requested to put the goods in custom port's warehouse. Vikas due to cash crunch was not in a position to pay custom duty and therefore did not file the bill of exchange (B.O.E.). Custom authorities charged a penalty of INR 15,000.

Finally, after a month Vikas filled B.O.E. and paid custom duty of 20% on CIF value of the shipment. IGST was also applicable @ 18% on the combined value of CIF & custom duty paid.

He spent further a sum of INR 12,500 to bring the imported goods to his factory. An inspection was done on the goods and it was found that 5% of the goods

were broken. This came to management as a surprise because generally such rate of defects on imports is 8%.

Additional Information:

- Exchange rates:
  (1) 1 SLR = 0.25 INR
  (2) 1 USD = 75 INR
- IGST credits are available.
- Containers were refunded at INR 38,000.
- Indian and Srilankan brokers were paid commission by Vikas on factory cost. Indian broker charged 6% whereas Srilankan broker charged 12%.
- CIF (cost, insurance and Freight) includes F.O.B (Free on Board)., Insurance & Ocean freight.

You are required to answer the following 5 questions:

MULTIPLE CHOICE QUESTIONS

1. What is the total cost of shipment to be recorded by Vikas?
   (a) INR 13,17,000
   (b) INR 13,04,500
   (c) INR 13,54,500
   (d) INR 13,32,500
2. What is the absorption rate of total cost per unit of Zenga?
   (a) INR 90.28
   (b) INR 84.44
   (c) INR 93.62
   (d) INR 85.77
3. What is the absorption rate of total cost per unit of Xendga?
   (a) INR 52.01
   (b) INR 54.24

(c) INR 58.13

(d) INR 68.65

4. Amount of refundable taxes?

(a) INR 4,13,600

(b) INR 4,57,600

(c) INR 2,20,000

(d) INR 2,37,600

5. If loss of goods was 9% instead of 5%, what will be the amount that will be charged to statement of profit & loss?

(a) INR 13,045

(b) INR 19,898.4

(c) INR 14,178.4

(d) INR 24,045

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) INR 13,17,000

Reason:

Working notes:

Factory cost (33,00,000 x 0.25)	INR 8,25,000
Add: Freight (50,000 x 0.25)	INR 12,500
F.O.B. (Free On Board)	INR 8,37,500
Containers (2,00,000 x 0.25)	INR 50,000
Insurance (1,500 x 75)	INR 1,12,500
Ocean freight (2,000 x 75)	INR 1,50,000
CIF (Cost, Insurance and Freight)	= 8,37,500 + 1,12,500 + 1,50,000
	= INR 11,00,000
Custom duty	= 20% x 11,00,000 = INR 2,20,000

IGST = 18% x (11,00,000 + 2,20,000)

= INR 2,37,600

Penalty = INR 15,000

Commission

Indian = 6% x 8,25,000 = INR 49,500

Srilankan = 12% x 8,25,000 = INR 99,000

Particulars	Amount (INR)
Factory cost	8,25,000
Containers (50,000-38,000)	12,000
Insurance	1,12,500
Ocean freight	1,50,000
Freight inwards	12,500
Commission (49,500+99,000)	1,48,500
Custom duty non-refundable 20%* 2,20,000	44,000
TOTAL	**13,04,500**

2. Option (a) INR 90.28

Reason:

Good units = 8,000* (1-5%) = 7,600 UNITS

Normal loss to be absorbed in good units. No abnormal loss.

Particulars	Product Zenga (INR)
Factory cost	4,50,000
Other cost except commission, insurance and custom duty to be absorbed on the basis of quantity i.e. 12:8 or 3:2 (12,000+1,50,000+12,500)*2/5	69,800
Commission, insurance and custom duty to be absorbed on value basis 15:18 or 5:6 (1,48,500+1,12,500+44,000)*6/11	1,66,363.63

Total Cost	6,86,163.63
Number of good units	7,600 units
Per unit Cost	**90.28**

3. Option (b) INR 54.24

Reason:

Good units = 12000 * (1-5%) = 11400 units

Particulars	**Product Xendga (INR)**
Factory cost	3,75,000
Other cost (12,000+1,50,000+12,500)*3/5	1,04,700
Commission, insurance and custom duty (1,48,500+1,12,500+44,000)*5/11	1,38,636.36
Total Cost	618,336.36
Number of good units	11,400 units
Per unit Cost	**54.24**

4. Option (a) INR 4,13,600

Reason:

Custom duty 80% x 2,20,000 = 1,76,000

Add: IGST = 2,37,600

4,13,600

5. Option (c) INR 14,178.4

Reason:

Normal loss upto 8%

Abnormal loss 1%

Total cost of xendga INR 6,18,336.36

Total cost of zenga INR 6,86,163.63

Particulars	XENGDA (INR)	ZENGA (INR)	(INR)
Normal loss of 8%	960 units	640 units	
Good units after normal loss	11,040 units	7,360 units	
Per unit cost to be absorbed in good units (total costs/no of good units after normal loss)	56 (6,18,336.36/11,040)	93.23 (6,86,163.63/7,360)	
Abnormal loss in units 1%	120 units	80 units	
Loss in Profit & Loss	56 x 120 = 6,720	93.23 x 80= 7,458.4	14,178.4

CASE SCENARIO 43

Hilfy textiles Ltd. has been a major player in the textile industry, producing high-quality polyester mix cotton fabric. The production process is complex and involves multiple stages, including spinning, weaving, quality control, and packaging. The company has been facing challenges in controlling costs and maintaining profitability, mainly due to fluctuating material costs and labor inefficiencies.

To address these challenges, the company's management has decided to implement a **standard costing** system to better manage costs, set benchmarks, and identify variances. The goal is to gain better control over production costs, improve budgeting accuracy, and enhance decision-making.

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

	Quantity/Time	Rate (₹)	Amount (₹)
Cotton	8,000 m	50.00	4,00,000
Polyester	6,000 m	40.00	2,40,000
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 14,800 m finished product by using the followings:

	Quantity/Time	Rate (₹)	Amount (₹)
Cotton	9,000 m	48.00	4,32,000
Polyester	6,500 m	37.00	2,40,500
Skilled labour	1,200 hours	35.50	42,600
Unskilled labour	860 hours	23.00	19,780

On the basis of analysis of standard costing system, company's management wants to take actions like supplier negotiation, process optimisation, employee training, etc.

Being the cost manager of the company, you are required to answer the following five requirements of the management:

MULTIPLE CHOICE QUESTIONS

1. Compute Material mix variance and Material Yield Variance
   (a) ₹ 1430 (A) & 43,200 (F)
   (b) ₹ 1430 (F) & 43,200 (F)
   (c) ₹ 24,000 (A) & 37,500 (F)
   (d) ₹ 19,300 (A) & 37,500 (F)
2. Compute Material Price Variance for supplier negotiation
   (a) ₹ 18,000 (A)
   (b) ₹ 43,200 (F)
   (c) ₹ 37,500 (A)
   (d) ₹ 37,500 (F)
3. Compute Material Cost Variance
   (a) ₹ 32,500 (F)
   (b) ₹ 24,500 (A)
   (c) ₹ 79,270 (F)
   (d) ₹ 79,270 (A)
4. Compute Labour Efficiency Variance and Labour Yield Variance.
   (a) ₹ 940 (A) & 1,140 (A)
   (b) ₹ 2,424 (A) & 1,556 (A)
   (c) ₹ 2,424 (A) & 1,556 (A)
   (d) ₹ 940 (A) & 1,140 (F)

5. Compute Labour Cost Variance.

(a) ₹ 884 (A)

(b) ₹ 1,556 (F)

(c) ₹ 884 (F)

(d) ₹ 1,556 (A)

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ₹ 1430 (A) & 43,200 (F)

Reason:

Material Mix Variance (Cotton + Polyester) = {(RSQ × SP) – (AQ × SP)}

= {7,08,570- 7,10,000}

= 1,430 (A)

Material Yield Variance (Cotton + Polyester) = {(SQ × SP) – (RSQ × SP)}

= {7,51,770 – 7,08,570}

= 43,200 (F)

2. Option (d) ₹ 37,500 (F)

Reason:

Material Price Variance (Cotton + Polyester) = {(AQ × SP) – (AQ × AP)

= {7,10,000 – 6,72,500}

= 37,500 (F)

3. Option (c) ₹ 79,270 (F)

Reason:

Material Cost Variance (Cotton + Polyester) = {(SQ × SP) – (AQ × AP)}

= {7,51,770 – 6,72,500}

= 79,270 (F)

Working Note

Material Variances:

Material	SQ (WN-1)	SP (₹)	SQ × SP (₹)	RSQ (WN-2)	RSQ × SP (₹)	AQ	AQ × SP (₹)	AP (₹)	AQ × AP (₹)
Cotton	9,397 m	50	4,69,850	8,857 m	4,42,850	9,000 m	4,50,000	48	4,32,000
Polyester	7,048 m	40	2,81,920	6,643 m	2,65,720	6,500 m	2,60,000	37	2,40,500
	16,445 m		**7,51,770**	**15,500 m**	**7,08,570**	**15,500 m**	**7,10,000**		**6,72,500**

WN-1: Standard Quantity (SQ):

Cotton - $\left(\frac{8,000m}{0.9\times14,000m}\times14,800m\right)$ = 9,396.8 or 9,397 m

Polyester- $\left(\frac{6,000m}{0.9\times14,000m}\times14,800m\right)$ = 7,047.6 or 7048 m

WN- 2: Revised Standard Quantity (RSQ):

Cotton - $\left(\frac{8,000m}{14,000m}\times15,500m\right)$ = 8,857.1 or 8857m

Polyester - $\left(\frac{6,000m}{14,000m}\times15,500m\right)$ = 6,642.8 or 6643 m

4. Option (b) ₹ 2,424 (A) & 1,556 (A)

Reason:

Labour Efficiency Variance (Skilled + Unskilled) = {(SH × SR) – (AH × SR)}
= {61,496 – 63,920}
= 2,424 (A)

Labour Yield Variance (Skilled + Unskilled) = {(SH × SR) – (RSH × SR)}
= {61,496 – 63,052}
= 1,556 (A)

5. Option (a) ₹ 884 (A)

Reason:

Labour Cost Variance (Skilled + Unskilled) = {(SH × SR) – (AH × AR)}
= {61,496 – 62,380}
= 884 (A)

Working Note

Labour Variances:

Labour	SH (WN-3)	SR (₹)	SH × SR (₹)	RSH (WN-4)	RSH × SR (₹)	AH	AH × SR (₹)	AR (₹)	AH × AR (₹)
Skilled	1,116 hrs	37.50	41,850	1144	42,900	1,200	45,000	35.50	42,600
Unskilled	893 hrs	22.00	19,646	916	20,152	860	18,920	23.00	19,780
	2,009 hrs		61,496	2,060	63,052	2,060	63,920		62,380

WN- 3: Standard Hours (SH):

Skilled labour- $\left(\frac{0.95\times1,000\,hr.}{0.90\times14,000\,m.}\times14,800\,m.\right)$ =1,115.87 or 1,116 hrs.

Unskilled labour- $\left(\frac{0.95\times800\,hr.}{0.90\times14,000\,m.}\times14,800\,m.\right)$ = 892.69 or 893 hrs.

WN- 4: Revised Standard Hours (RSH):

Skilled labour- $\left(\frac{1,000\,hr.}{1,800\,hr.}\times2,060\,hr.\right)$ = 1,144.44 or 1,144 hrs.

Unskilled labour- $\left(\frac{800\,hr.}{1,800\,hr.}\times2,060\,hr.\right)$ = 915.56 or 916 hrs.

CASE SCENARIO 44

XYZ Manufacturing Ltd. is a mid-sized enterprise that has established a strong reputation in the field of precision engineering. The company specializes in producing high-quality engineering components that meet the stringent requirements of various industries including automotive, aerospace, medical devices, and industrial machinery. With a commitment to precision and excellence, XYZ Manufacturing Ltd. has positioned itself as a reliable supplier of critical components that demand the highest levels of accuracy and durability.

To maintain stringent control over its production costs and enhance cost efficiency, XYZ Manufacturing Ltd. operates under a standard costing system. This system plays a pivotal role in the company's financial and operational management. Standard costing involves setting predetermined costs for each production element, including materials, labor, and overheads. These predetermined costs, known as standard costs, serve as benchmarks against which actual production costs are measured.

Particulars	Budgeted Data	Actual Data
Units Produced	10,000 units	9,500 units
Fixed Overheads	₹ 20,00,000	₹ 19,50,000 + ₹ 1,00,000 (additional quality control cost for 1,000 units chosen on sample basis)
Hours Worked	15,000 hours	14,250 hours
Variable Overhead Rate	₹ 50 per hour	₹ 50 per hour (first 10,000 hours) ₹ 60 per hour (additional hours)

MULTIPLE CHOICE QUESTIONS

Based on the given information, you are being required to answer the following questions

1. What is the Fixed Overhead Cost Variance for XYZ Manufacturing Ltd. in May 2024?

   (a) ₹ 50,000 (A)

   (b) ₹ 1,00,000 (A)

   (c) ₹ 1,50,000 (A)

   (d) ₹ 2,00,000 (A)

2. What is the Fixed Overhead Volume Variance for XYZ Manufacturing Ltd. in May 2024?

   (a) ₹ 50,000 (F)

   (b) ₹ 50,000 (A)

   (c) ₹ 1,00,000 (F)

   (d) ₹ 1,00,000 (A)

3. What is the Variable Overhead Efficiency Variance for XYZ Manufacturing Ltd. in May 2024?

   (a) ₹ 37,500 (A)

   (b) ₹ 42,500 (A)

   (c) ₹ 0

   (d) ₹ 25,000 (A)

4. What is the Variable Overhead Expenditure Variance for XYZ Manufacturing Ltd. in May 2024?

   (a) ₹ 40,000 (A)

   (b) ₹ 42,500 (A)

   (c) ₹ 45,000 (A)

   (d) ₹ 45,030 (A)

5. What is the Fixed Overhead Expenditure Variance for XYZ Manufacturing Ltd. in May 2024?

(a) ₹ 50,000 (F)

(b) ₹ 50,000 (A)

(c) ₹ 1,00,000 (F)

(d) ₹ 1,00,000 (A)

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) ₹ 1,50,000 (A)

Reason:

Fixed Overhead Cost Variance = Absorbed Fixed Overheads - Actual Fixed Overheads

Absorbed Fixed Overheads = (Budgeted Fixed Overheads / Budgeted Production) x Actual Production

= (₹ 20,00,000 / 10,000 units) x 9,500 units

= ₹ 19,00,000

Adjusted Actual Fixed Overheads = ₹ 19,50,000 + ₹ 1,00,000 = ₹ 20,50,000

Fixed Overhead Cost Variance = ₹ 19,00,000 - ₹ 20,50,000 = ₹ 1,50,000 (Adverse)

2. Option (d) ₹ 1,00,000 (A)

Reason:

Fixed Overhead Volume Variance = (Actual Production - Budgeted Production) x Standard Fixed Overhead Rate per Unit

Standard Fixed Overhead Rate per Unit = ₹ 20,00,000 / 10,000 units = ₹ 200 per unit

Fixed Overhead Volume Variance = (9,500 units - 10,000 units) x ₹ 200

= 500 units x ₹ 200

= ₹ 1,00,000 (Adverse)

3. Option (c) 0

Reason:

Variable Overhead Efficiency Variance = (Standard Hours for Actual Production - Actual Hours Worked) x Standard Variable Overhead Rate

Standard Hours for Actual Production = 9,500 units x 1.5 hours/unit

= 14,250 hours

Variable Overhead Efficiency Variance = (14,250 – 14,250) x ₹ 50 = 0

4. Option (b) ₹ 42,500 (A)

Reason:

Variable Overhead Expenditure Variance = (Standard Rate - Actual Rate) x Actual Hours Worked

Total Variable Overhead for Actual Hours: = (10,000 x ₹ 50) + (4,250 x ₹ 60)

= ₹ 5,00,000 + ₹ 2,55,000

= ₹ 7,55,000

Variable Overhead Expenditure Variance = (₹ 50 x 14,250 hours) - ₹ 7,55,000

= ₹ 42,500 (Adverse)

5. Option (b) ₹ 50,000 (A)

Reason:

Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads - Actual Fixed Overheads

= ₹ 20,00,000 - ₹ 20,50,000

= ₹ 50,000 (Adverse)

CASE SCENARIO 45

A garment manufacturer has been producing and selling T-shirts exclusively for Indian market. His T-shirts are made of a specific material which is eco-friendly. It means that T-shirts are bio-degradable in soil after they become unsuitable for use.

This invention has been applauded throughout the country. Owner, Vikas, registered for the patent rights for his invention so that no one else could use it.

Vikas feels that this invention will also be liked in foreign markets, and thus plans to expand his business outside India. He feels that US market is the first foreign market he should tap into.

Current cost structure (each T-shirt):

Direct material	90
Direct labour	60
Special service	80
(Used in T-shirt making, 50% fixed)	
Fixed overhead	50
Administration overhead (fixed)	20
Total cost per T-shirt	300
(+) Profit margin	200
Selling price in India	500

There is no limitation of any resources in India. Vikas is able to sell 80,000 T-shirts each year. He is currently working at 80% of his total capacity.

After searching for potential customers in US, Vikas received an inquiry for 30,000 units from a wholesale distributor in California. As per the inquiry, order will be placed if price per T-shirt is reasonable and the order has to be satisfied in full.

Vikas decided to send a quote and the order was placed by the foreign client, on the same day. Vikas, without a second thought accepted the order, but did not feel the need to extend the manufacturing capacity; therefore he decided forgo a few Indian clients.

This foreign order also required special packaging. It is spent at 20% of the total prime cost per T-shirt. The production was done quickly and foreign consignment was transported to custom port via services from a carriage agency. It charged ₹ 80,000 for 1 truck, whose capacity was 500 kg, to transport whole of the consignment. Truck was 20% vacant after loading the consignment.

Bill of lading was filed and a professional fee of ₹ 25,000 for filing this was paid to a Chartered accountant. Custom port also charged ₹ 80 per kg per day to handle the material, storing it in warehouse, and for loading the goods on ship.

The shipping company, which was booked by Vikas for taking the consignment to US, got delayed due to bad weather. Stock was held at port for 5 days and on 6th day it was loaded on ship. Shipping company charged ₹ 2,800/ 10kg of goods. Insurance was charged flat at ₹ 1,11,000.

There is no custom duty on such exports.

MULTIPLE CHOICE QUESTIONS

Answer the following questions (MCQs 1to 5):

1. Vikas had sufficient funds in his hands but he still raised a short-term working capital loan @ 6.5% p.a. for the satisfaction of this foreign order because he found a one time investment opportunity which was giving him 9.25% returns. Foreign order was accepted on 1st June and loan was taken on the same day. Repayment of the loan will be made on 1st September. Calculate net cash outflow due to this export order. Which of the following is correct?

   (a) ₹ 73,91,000

   (b) ₹ 75,47,750

   (c) ₹ 74,76,500

(d) ₹ 71,06,000

2. What would have been the minimum price that Vikas could have quoted per T-shirt in US dollars? (exchange rate on 1st June, $1 = ₹ 83.86)

   (a) $ 4.23

   (b) $ 4.20

   (c) $ 4.17

   (d) $4.05

3. Payment from foreign client was received on 8th October when exchange rate was ₹ 86 for each US $. Calculate the profit earned from this export order if actual quoted price was $4.90 per T-shirt. Select the correct amongst following:

   (a) ₹ 40,65,500

   (b) ₹ 41,51,000

   (c) ₹ 39,94,250

   (d) ₹ 44,36,000

4. What is the net cash Inflow from this export order?

   (a) ₹ 55,36,000

   (b) ₹ 51,65,500

   (c) ₹ 52,51,000

   (d) ₹ 50,94,250

5. What is the Incremental benefit from this export order?

   (a) ₹ 19,94,250

   (b) ₹ 21,51,000

   (c) ₹ 20,65,500

   (d) ₹ 24,36,000

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) ₹ 75,47,750

Reason:

Funds required for foreign order:

Costs	Amounts
Direct material per unit	90
Add: Direct labour per unit	60
Add: special services per unit	40
	190
Add: packaging per unit [20% x prime cost, 20% x (90 + 60 + 80)]	46
Variable cost per unit	236
Total variable cost (236x30,000)	**70,80,000**
Add: freight	80,000
Add: professional fees	25,000
Add: custom charges (500kg x 80% x 80 x 6)	1,92,000
	73,77,000
Add: shipping ((500x80%/10) x 2,800)	1,12,000
Add: insurance	1,11,000
Funds required	**76,00,000**

Net amount of interest earned (interest earned in 9.25% and paid is 6.50% for 3 months) = 76,00,000 x (9.25% - 6.50%) x 3/12 = 52,250

So, net cash outflow due to export order = 76,00,000 - 52,250

= 75,47,750

2. Option (a) $ 4.23

Reason:

Minimum price :-

Variable cost (net)	75,47,750
Add: fixed cost recovery (110 x 10,000 units)	11,00,000

Add: loss of profit (200 x 10,000 units)	20,00,000
Minimum price	1,06,47,750
Minimum price per unit 1,06,47,750/30,000	₹ 354.925
Minimum price is $ ($1 = ₹ 83.864)	$ 4.23

3. Option (c) ₹ 39,94,250

Reason:

PROFIT EARNED:

SALES ($4.90 x 30,000 x RS. 86)	**₹ 1,26,42,000**
(-) Variable cost (net)	(75,47,750)
(-) allotted fixed cost (10,000 units x110)	(11,00,000)
PROFIT	₹ 39,94,250

4. Option (d) ₹ 50,94,250

Reason:

CASH INFLOW:

SALES ($4.90 x 30,000 x RS. 86)	₹ 1,26,42,000
(-) Variable cost (net)	(75,47,750)
CASH INFLOW	**₹ 50,94,250**

5. Option (a) ₹ 19,94,250

Option

Incremental benefits:

SALES ($4.90 x 30,000 x RS. 86)	**₹ 1,26,42,000**
(-) Variable cost (net)	(75,47,750)
(-) allotted fixed cost (10,000 units x110)	(11,00,000)
(-) loss of profit (10,000x200)	(20,00,000)
Incremental benefits	**19,94,250**

CASE SCENARIO 46

A truck driver, named Raju, owns a truck which can carry 5 tonne of material at a time. Raju has no other truck and he has listed himself with various carriage services agencies, to offer his services. He gets his work from these agencies and they pay him as per the load and the distance. Raju has one condition that he must be paid for at least 75% of his total capacity. Raju charges freight at ₹ 10 per tonne-km.

He received a work contract, from one of these agencies, where he has to take 4 tonne from Delhi in the morning and drop it off at Chandigarh. After that he will move to Ludhiana, where he again loads 3 tonne and come back to Delhi by evening. This contract is for nearly 3 months.

Raju is excited to accept the order but it is not physically possible for Raju to complete this project alone. He decides to hire a helper cum driver who will assist him in this work contract and will also drive in turns with Raju. Thus, such a long contract will be managed comfortably. This helper will take ₹ 15,000 per month.

The contract will start from 15th June, 2024 and will run till 14th September, 2024. Throughout this time period there are only 2 days holidays, both falling in August (1 for Independence Day and 1 for Raksha Bandhan).

Some information about the Truck and its associated costs:

- Truck was purchased on 1st April, 2021 by taking a loan of ₹ 20,00,000 @ 10% p.a. from Punjab national bank for 5 years. Raju mortgaged jewellery of his wife to get this loan.
- Every year-end he has to pay ₹ 5,27,595 as instalment.
- Scrap value after 10 years is expected to be ₹ 500,000.
- Depreciation is charged on straight-line method.
- Services and maintenance charges each month is ₹ 80,000.
- Truck runs on diesel and its running average is 8kms/ litre.
- Diesel cost per litre:

June	80.30
July	80.50
August	81.25
September	80.90

Yearly interest amount of loan and yearly depreciation is charged to a work contract on the basis of days worked in a year in the contract.

Distance between these places:

(1) Delhi to Chandigarh = 250 kms

(2) Chandigarh to Ludhiana = 100 kms

(3) Ludhiana to Delhi = 150 kms

MULTIPLE CHOICE QUESTIONS

Answer the following questions (MCQs 1 to 5):

1. What would be the amount of profit Raju would have earned if he had no minimum charges limit of 75% of total capacity on absolute Tonne-km basis? (If the vehicle runs empty then he would only charge for Diesel expenses).

   (a). 3,34,249

   (b). 4,43,249

   (c). 5,96,977

   (d). 4,34,249

2. If payment was made on commercial Tonne-km basis and Raju had no minimum charges limit of 75%, how much he would have lost due to no minimum requirement?

   (a). ₹ 6,37,500

   (b). ₹ 5,93,750

   (c). ₹ 4,92,438

   (d). ₹ 3,91,126

3. What should be the minimum amount charged on basis of absolute Tonne-km if Raju wants to earn ₹ 2,70,000?

   (a). ₹ 4.58

   (b). ₹ 6.13

   (c). ₹ 8.39

   (d). ₹ 3.21

4. Choose the correct amount of depreciation and interest that should be charged to this work contract.

   (a). 56,983 & 22,588

   (b). 36,986 & 22,578

   (c). 63,963 & 12,568

   (d). 63,953 & 12,558

5. What is the profit as per current rate charged by Raju? (Use absolute Tonne-Km).

   (a). 7,34,249

   (b). 9,44,863

   (c). 5,96,977

   (d). 4,34,249

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) Profit if no minimum charges are there, on absolute tonne basis, but he will charge for diesel petrol when running empty

Reason:

Absolute tonne-kms: (250 kms x 4 tonnes + 150 kms x 3 tonnes) x 90 days

= 1,30,500 tonne-kms

Vacant moving (Chandigarh to Ludhiana) = 100kms x 90 days = 9,000 kms

Charges for vacant running:

	(₹)
June (80.30 x 16 x 100)/8	16,060
July (80.50 x 31 x 100) /8	31,194
August (81.25 x 29 x 100) /8	29,453
September (80.90 x 14 x 100) /8	14,158
Total Charges	**90,864**

	(₹)
Total revenue (1,30,500 x 10)	13,05,000
Add: diesel recovery for vacant running	90,864
Less: service & maintenance (80,000 x 3)	(2,40,000)
Less: salary (15,000 x 3)	(45,000)
Less: diesel cost	(4,54,323)
Less: interest	(22,578)
Less: depreciation	(36,986)
Profit	**5,96,977**

Bifurcation of principal and interest

Years	Calculation of interest (₹)	Interest (₹)	Principal repayment (₹)	Loan balance (₹)
0	-	-	-	20,00,000
1	20,00,000 x 10%	2,00,000	3,27,595	16,72,405
2	16,72,405 x 10%	1,67,241	3,60,354	13,12,051
3	13,12,051 x 10%	1,31,205	3,96,390	9,15,661
4	9,15,661 x 10%	91,566	4,36,029	4,79,632
5	4,79,632 x 10%	47,963	4,79,632	-

Interest allocated to this job = 91,566 x 90 / 365 = 22,578

$$\text{Depreciation} = \frac{20,00,000 - 5,00,000}{10} \times \frac{90}{365} = 36,986$$

Diesel expenses:

	(₹)
June (80.30 x 16 x 500)/8	80,300
July (80.50 x 31 x 500)/8	1,55,969
August (81.25 x 29 x 500)/8	1,47,266
September (80.90 x 14 x 500)/8	70,788
Total diesel expenses	**4,54,322**

2. Option (a) ₹ 6,37,500

Reason:

	With minimum limit (₹)	Without minimum limit (₹)
Commercial tonne kms	3.75 x 500 x 90 = 1,68,750	((4+0+3)/3) x 500 x 90 = 1,05,000
revenue	1,68,750 x 10 = 16,87,500	1,05,000 x 10 = 10,50,000
Less: costs	(7,98,887)	(7,98,887)
Profit/(loss)	8,88,613	2,51,113

Loss arising due to no minimum limit = 8,88,613-2,51,113 = 6,37,500

3. Option (b) ₹ 6.13

Reason:

Total Revenue = Cost + Profit = 7,98,887+ 2,70,000 = ₹ 10,68,887

Absolute Tonne-Kms = 1,74,375

Rate = 10,68,887/1,74,375 = ₹ 6.13

4. Option (b) 36,986 & 22,578

5. Option (b) 9,44,863

Reason for 4 & 5:

Profit at current rate (based on minimum charges of 75%)

Absolute tonne-kms: (250 kms x 4 tonnes + 100 kms x 3.75 tonnes + 150 kms x 3.75 tonnes) x 90 days = 1,74,375 tonne-kms

	(₹)
Total revenue (1,74,375 x 10)	17,43,750
Less: service & maintenance (80,000 x 3)	(2,40,000)
Less: salary (15,000 x 3)	(45,000)
Less: diesel cost	(4,54,323)
Less: interest	(22,578)
Less: depreciation	(36,986)
Profit	**9,44,863**

CASE SCENARIO 47

eSalt is the biggest producer of sodium hydroxide in India. This main product of the company has a strong reactivity with other organic compounds. It is highly versatile and is alkaline in nature. However, the basic material required for the production of this product is salt along with the electricity.

The manufacturing process involve electrolysis which produces Halogen as co-product. Modern use of Halogen is widespread. However, the common use is in disinfection like for purifying drinking water or swimming pool water. It is also an important ingredient of toothpaste. Thus, the company's management affirmed the simultaneous production of Halogen.

During the previous financial year, the company purchased the base material of ₹ 5,34,000. For the current year, company decided to increase the production by 2 times. Due to increased production, the total conversion cost hiked to 3 times. Last year, the conversion cost accounted to ₹ 8,01,000 up to the point at which two products i.e. sodium hydroxide and Halogen are separated.

The production and sales information for current year is provided as below:

	Sodium hydroxide	Halogen
Production/ Sales(in tonne)	24,030	16,020
Selling price per tonne (₹)	100	150

During the current year, the management of the company pointed the extensive use of Vinyl which can be produced by further processing Halogen. Having selling price of ₹ 250 per tonne higher than that of the Halogen, it was decided not to sell Halogen and further process it into Vinyl. The incremental processing cost took ₹ 8,01,000 producing 10,012.50 tonnes of Vinyl.

MULTIPLE CHOICE QUESTIONS

You are required to FIGURE OUT the following for managerial decision (MCQs 1 to 5):

1. For the current year, the amount of base material purchased and the conversion cost up to the point at which two products i.e. Sodium hydroxide and Halogen are separated would be:

   (a). base material ₹ 10,68,000 and conversion cost ₹ 24,03,000

   (b). base material ₹ 10,68,000 and conversion cost ₹ 16,02,000

   (c). base material ₹ 16,02,000 and conversion cost ₹ 24,03,000

   (d). base material ₹ 24,03,000 and conversion cost ₹ 16,02,000

2. Joint cost to be apportioned between Sodium hydroxide and Halogen as per the physical unit method would be:

   (a). Sodium hydroxide ₹ 24,03,000 and Halogen ₹ 10,68,000

   (b). Sodium hydroxide ₹ 10,68,000 and Halogen ₹ 16,02,000

   (c). Sodium hydroxide ₹ 16,02,000 and Halogen ₹ 24,03,000

   (d). Sodium hydroxide ₹ 24,03,000 and Halogen ₹ 16,02,000

3. Joint cost to be apportioned between Sodium hydroxide and Halogen as per the sales value at split- off point method would be:

   (a). Sodium hydroxide ₹ 20,02,500 and Halogen ₹ 20,02,500

   (b). Sodium hydroxide ₹ 16,02,000 and Halogen ₹ 24,03,000

   (c). Sodium hydroxide ₹ 24,03,000 and Halogen ₹ 16,02,000

   (d). Sodium hydroxide ₹ 10,68,000 and Halogen ₹ 20,02,500

4. Joint cost to be apportioned between Sodium hydroxide and Halogen as per the estimated net realisable value method would be:

   (a). Sodium hydroxide ₹ 23,44,390 and Halogen ₹ 16,60,610

   (b). Sodium hydroxide ₹ 17,16,429 and Halogen ₹ 22,88,571

(c). Sodium hydroxide ₹ 22,88,571 and Halogen ₹ 17,16,429

(d). Sodium hydroxide ₹ 16,60,610 and Halogen ₹ 23,44,390

5. Considering that the decision relating to further processing Halogen is not approved, suggest whether this would be in favour of the management by calculating incremental revenue /loss from further processing Halogen into Vinyl.

(a). Incremental loss would be ₹ 16,02,000, thus the decision of not further processing Halogen is correct.

(b). Incremental loss would be ₹ 8,01,000, thus the decision of not further processing Halogen is correct.

(c). Incremental revenue would be ₹ 8,01,000, thus the decision relating to further processing Halogen needs to be approved.

(d). Incremental revenue would be ₹ 16,02,000, thus the decision relating to further processing Halogen needs to be approved.

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option(c) base material ₹ 16,02,000 and conversion cost ₹ 24,03,000

Reason:

Particulars	Base Material	Conversion cost
Previous year cost (₹)	5,34,000	8,01,000
Increased by	2 times	-
Increased to		3 times
Current year cost (₹)	5,34,000 + (5,34,000 x 2) = 16,02,000	8,01,000 x 3 = 24,03,000

2. Option (d) Sodium hydroxide ₹ 24,03,000 and Halogen ₹ 16,02,000

Reason:

Products	Production/ Sales(in tonne)	Joint Cost Apportioned (₹)
Sodium hydroxide	24,030	24,03,000
Halogen	16,020	16,02,000
Total	**40,050**	**40,05,000**

Joint cost = base material + conversion cost

= 16,02,000 + 24,03,000

= 40,05,000

Apportioned joint cost = $\frac{\text{Total joint cost}}{\text{Total physical value}}$ x Physical units of each product

For Sodium hydroxide = $\frac{₹\ 40,05,000}{40,050 \text{ tonnes}}$ x 24,030 tonnes

= ₹ 24,03,000

For Halogen = $\frac{₹\ 40,05,000}{40,050 \text{ tonnes}}$ x 16,020 tonnes

= ₹ 16,02,000

3. Option (a) Sodium hydroxide ₹ 20,02,500 and Halogen ₹ 20,02,500

Reason:

Products	Sales (in Tonne)	Selling Price per Tonne (₹)	Sales Revenue (₹)	Joint Cost Apportioned (₹)
Sodium hydroxide	24,030	100	24,03,000	20,02,500
Halogen	16,020	150	24,03,000	20,02,500
Total	**40,050**		**48,06,000**	**40,05,000**

Apportioned joint cost = $\frac{\text{Total joint cost}}{\text{Total sale revenue}}$ x Sale revenue of each product

For Sodium hydroxide = $\frac{₹\ 40,05,000}{₹\ 48,06,000}$ x 24,03,000 = ₹ 20,02,500

For Halogen = $\frac{₹\ 40,05,000}{₹\ 48,06,000}$ x 24,03,000 = ₹ 20,02,500

4. Option (b) Sodium hydroxide ₹ 17,16,429 and Halogen ₹ 22,88,571

Reason:

Products	Sales (in Tonne)	Selling Price per Tonne (₹)	Sales Value (₹)	Post split-off cost (₹)	Net Realisable Value (₹)	Joint Cost Apportioned (₹)
Sodium hydroxide	24,030	100	24,03,000	-	24,03,000	17,16,429
Halogen (Vinyl after further processing)	10,012.50	150 + 250 = 400	40,05,000	8,01,000	32,04,000	22,88,571
Total					**56,07,000**	**40,05,000**

Apportioned joint cost = $\frac{\text{Total joint cost}}{\text{Total Net Realisable Value}}$ x Net Realisable Value of each product

For Sodium hydroxide = $\frac{₹\ 40,05,000}{₹\ 56,07,000}$ x 24,03,000

= ₹ 17,16,429

For Halogen = $\frac{₹\ 40,05,000}{₹\ 56,07,000}$ x 32,04,000

= ₹ 22,88,571

5. Option (c) Incremental revenue would be ₹ 8,01,000, thus the decision relating to further processing Halogen needs to be approved.

Reason:

Particulars	**Amount (in ₹)**
Revenue from sales of Vinyl if Halogen further processed (10,012.50 tonnes × ₹ 400) (A)	40,05,000
Revenue from sales of Halogen if no further processing done (16,020 tonnes × ₹ 150)(B)	24,03,000
Incremental revenue from further processing of Halogen into Vinyl (A-B)	**16,02,000**
Incremental cost of further processing Halogen into Vinyl	8,01,000
Incremental operating income from further processing	**8,01,000**

Incremental revenue would be ₹ 8,01,000, thus the decision relating to further processing Halogen needs to be approved.

CASE SCENARIO 48

The purchase committee of A Ltd. has been entrusted to review the material procurement policy of the company. The chief marketing manager has appraised the committee that the company at present produces a single product X by using two raw materials A and B in the ratio of 3:2. Material A is perishable in nature and has to be used within 10 days from Goods received note (GRN) date otherwise material becomes obsolete. Material B is durable in nature and can be used even after one year. Material A is purchased from the local market within 1 to 2 days of placing order. Material B, on the other hand, is purchased from neighbouring state and it takes 2 to 4 days to receive the material in the store.

The purchase price of per kilogram of raw material A and B is ₹30 and ₹44 respectively exclusive of taxes. To place an order, the company has to incur an administrative cost of ₹1,200. Carrying cost for Material A and B is 15% and 5% respectively. At present material A is purchased in a lot of 15,000 kg. to avail 10% discount on market price. GST applicable for both the materials is 18% and the input tax credit is availed.

The sales department has provided an estimate that the company could sell 30,000 kg. in January 2024 and also projected the same trend for the entire year.

The ratio of input and output is 5:3. Company works for 25 days in a month and production is carried out evenly.

The following queries/ calculations to be kept ready for purchase committees' reference:

1. For the month of January 2024, what would be the quantity of the materials to be requisitioned for both material A and B:
   (a) 9,000 kg & 6,000 kg respectively
   (b) 18,000 kg & 12,000 kg respectively
   (c) 27,000 kg & 18,000 kg respectively
   (d) 30,000 kg & 20,000 kg respectively.
2. The economic order quantity (EOQ) for both the material A & B:

(a) 13,856 kg & 16,181 kg respectively

(b) 16,197 kg & 17,327 kg respectively

(c) 16,181 kg & 17,165 kg respectively

(d) 13,197 kg & 17,165 kg respectively

3. What would the maximum stock level for material A:

(a) 18,200 kg.

(b) 12,000 kg.

(c) 16,000 kg.

(d) 16,200 kg.

4. Calculate saving/ loss in purchase of Material A if the purchase order quantity is equal to EOQ.

(a) Profit of ₹ 3,21,201.

(b) Loss of ₹ 3,21,201.

(c) Profit of ₹ 2,52,500.

(d) Loss of ₹ 2,52,500.

5. What would the minimum stock level for material A:

(a) 1,800 kg.

(b) 1,200 kg.

(c) 600 kg.

(d) 2,400 kg.

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) 30,000 kg & 20,000 kg respectively.

Reason:

Monthly Production of X = 30,000 kgs.

Raw Material Required = $\frac{30,000}{3} \times 5$ = 50,000 kgs.

Material A $= \frac{50,000}{5} \times 3$ = **30,000 kg.**

Material B $= \frac{50,000}{5} \times 2$ = **20,000 kg.**

2. Option (a) 13,856 kg & 16,181 kg respectively

Reason:

Calculation of Economic Order Quantity (EOQ):

Material A $= \sqrt{\frac{2 \times \text{Annual consumption} \times \text{Order cost}}{\text{Carrying cost per unit p.a.}}}$

$= \sqrt{\frac{2 \times (30,000 \times 12) \times 1,200}{15\% \text{ of } 30}}$ = **13,856 kg.**

Material B $= \sqrt{\frac{2 \times (20,000 \times 12) \times 1,200}{5\% \text{ of } 44}}$ = **16,181 kg.**

3. Option (b) 12,000 kg.

Reason:

Calculation of Maximum Stock level: Since, the Material A is perishable in nature and it required to be used within 10 days, hence, the Maximum Stock Level shall be lower of two:

(a) Stock equal to 10 days consumption

$= \frac{30000}{25} \times 10$ days = 12,000 kg.

(b) Maximum Stock Level for Material A:

Re-order Quantity + Re-order level – (Min consumption* × Min. lead time)

Where,

Re-order Quantity = 15,000 kg.

Re-order level = Max. Consumption* × Max. Lead time

= 30,000/25 × 2 days = 2,400 kg.

Maximum stock Level = 15,000 kg. + 2,400 kg. – $(\frac{30,000}{25} \times 1$ day)

= 17,400 – 1,200 = 16,200 kg.

Stock required for 10 days consumption is lower than the maximum stock level calculated through the formula. Therefore, Maximum Stock Level will be **12,000 kg.**

(*Since, production is processed evenly throughout the month hence material consumption will also be even.)

4. Option (b) Loss of ₹ 3,21,201.

Reason:

Calculation of Savings/ loss in Material A if purchase quantity equals to EOQ.

	Purchase Quantity = 15,000 kg.	**Purchase Quantity = EOQ i.e. 13,856 kg.**
Annual consumption	3,60,000 kg. (30,000 × 12 months)	3,60,000 kg. (30,000 × 12 months)
No. of orders [Note- (i)]	30 (3,60,000 ÷ 12,000)	30 (3,60,000 ÷ 12,000)
Ordering Cost (a)	₹36,000 (₹1200 × 30)	₹36,000 (₹1200 × 30)
Carrying Cost (b) [Note- (ii)]	₹30,375 (15% of ₹27 × 7,500)	₹31,176 (15% of ₹30 × 6,928)
Purchase Cost (c) (for good portion)	₹97,20,000 (₹27 × 3,60,000)	₹1,08,00,000 (₹30 × 3,60,000)
Loss due to obsolescence (d) [Note- (iii)]	₹24,30,000 [₹27 × (30 × 3,000)]	₹16,70,400 [₹30 × (30 × 1,856)]
Total Cost [(a) + (b) + (c) + (d)]	₹ 1,22,16,375	₹ 1,25,37,576

Purchasing of material -A at present policy of 15,000 kg. saves **₹ 3,21,201.**

Notes:

(i) Since, material gets obsolete after 10 days, the quantity in excess of 10 days consumption i.e. 12,000 kg. are wasted. Hence, after 12,000 kg. a fresh order needs to be given.

(ii) Carrying cost is incurred on average stock of Materials purchased.

(iii) the excess quantity of material becomes obsolete and loss has to be incurred.

5. Option (c) 600 kg.

Reason:

Minimum Stock Level for Material A

= Re-order level – (Average Consumption Rate x Average Re-order Period)

= 2400 – (1200 x 1.5) = **600 kgs**

Re-order level = Max. Consumption* × Max. Lead time

= 30,000/25 × 2 days = 2,400 kg.

Average Consumption Rate = (30,000/25 + 30,000/25)/2

= 1,200 Kg

Average Re-order Period = (1 + 2)/2 =1.5 Days

Stock required for 10 days consumption is lower than the maximum stock level calculated through the formula. Therefore, Maximum Stock Level will be 12,000 kg.

(*Since, production is processed evenly throughout the month hence material consumption will also be even.)

CASE SCENARIO 49

The board of the J Ltd. has been appraised by the General Manager (HR) that the employee attrition rate in the company has increased. The following facts has been presented by the GM(HR):

(1) Training period of the new recruits is 50,000 hours. During this period their productivity is 60% of the experienced workers. Time required by an experienced worker is 10 hours per unit.

(2) 20% of the output during training period was defective. Cost of rectification of a defective unit was ₹ 25.

(3) Potential productive hours lost due to delay in recruitment were 1,00,000 hours.

(4) Selling price per unit is ₹ 180 and P/V ratio is 20%.

(5) Settlement cost of the workers leaving the organization was ₹ 1,83,480.

(6) Recruitment cost was ₹ 1,56,340

(7) Training cost was ₹ 1,13,180

MULTIPLE CHOICE QUESTIONS

You being an associate finance to GM(HR), has been asked the following questions:

1. How much quantity of output is lost due to labour turnover?

   (a) 10,000 units

   (b) 8,000 units

   (c) 12,000 units

   (d) 12,600 units

2. How much loss in the form of contribution, the company incurred due to labour turnover?

   (a) ₹ 4,32,000

(b) ₹ 4,20,000

(c) ₹ 4,36,000

(d) ₹ 4,28,000

3. What is the cost repairing of defective units?

(a) ₹ 75,000

(b) ₹ 15,000

(c) ₹ 50,000

d) ₹ 25,000

4. Calculate the profit lost by the company due to increased labour turnover.

(a) ₹ 7,50,000

(b) ₹ 15,00,000

(c) ₹ 5,00,000

(d) ₹ 9,00,000

5. How much quantity of output is lost due to inexperience of the new worker?

(a) 1,000 units

(b) 2,600 units

(c) 2,000 units

(d) 12,600 units

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) 12,000 units

Reason:

Output by experienced workers in 50,000 hours

$$= \frac{50,000}{10}$$

= 5,000 units

∴ Output by new recruits = 60% of 5,000 = 3,000 units

Loss of output = 5,000 – 3,000 = 2,000 units

Total loss of output = Due to delay recruitment + Due to inexperience

= 10,000 +2,000=**12,000 units**

2. Option (a) ₹ 4,32,000

Reason:

Contribution per unit = 20% of ₹ 180 = ₹ 36

Total contribution lost = ₹ 36 × 12,000 units = **₹ 4,32,000**

3. Option (b) ₹ 15,000

Reason:

Cost of repairing defective units = 3,000 units × 0.2 × ₹ 25

= **₹ 15,000**

4. Option (d) ₹ 9,00,000

Reason:

Calculation of loss of profit due to labour turnover

	(₹)
Loss of Contribution	4,32,000
Cost of repairing defective units	15,000
Recruitment cost	1,56,340
Training cost	1,13,180
Settlement cost of workers leaving	1,83,480
Profit forgone in 2022-23	9,00,000

5. Option (c) 2,000 units

Reason:

Output by experienced workers in 50,000 hours

$$= \frac{50,000}{10}$$

= 5,000 units

∴ Output by new recruits = 60% of 5,000 = 3,000 units

Loss of output = 5,000 – 3,000 = **2,000 units**

CASE SCENARIO 50

During half year ending inter departmental review meeting of P Ltd., cost variance report was discussed and the performance of the departments were assessed. The following figures were presented.

For a period of first six months of the financial year, following information were extracted from the books:

Actual production overheads	₹ 34,08,000
The above amount is inclusive of the following payments made:	
Paid as per court's order	₹ 4,50,000
Expenses of previous year booked in current year	₹ 1,00,000
Paid to workers for strike period under an award	₹ 4,20,000
Obsolete stores written off	₹ 36,000

Production and sales data for the six months are as under:

Production:	
Finished goods	1,10,000 units
Works-in-progress	
(50% complete in every respect)	80,000 units
Sale:	
Finished goods	90,000 units

Machine worked during the period was 3,000 hours.

At the of preparation of revenue budget, it was estimated that a total of ₹ 50,40,000 would be required for budgeted machine hours of 6,000 as production overheads for the entire year.

During the meeting, a data analytic report revealed that 40% of the over/under-absorption was due to defective production policies and the balance was attributable to increase in costs.

You were also present at the meeting; the chairperson of the meeting has asked you to be ready with the followings for the performance appraisal of the departmental heads:

MULTIPLE CHOICE QUESTIONS

1. How much was the budgeted machine hour rate used to recover overhead?

   (a) ₹ 760

   (b) ₹ 820

   (c) ₹ 780

   (d) ₹ 840

2. How much amount of production overhead has been recovered (absorbed) upto the end of half year end?

   (a) ₹ 25,20,000

   (b) ₹ 34,08,000

   (c) ₹ 24,00,000

   (d) ₹ 24,60,000

3. What is the amount of overhead under/ over absorbed?

   (a) 1,18,000 over-absorbed

   (b) 1,18,000 under- absorbed

   (c) 18,000 over-absorbed

   (d) 18,000 under-absorbed

4. What is the supplementary rate for apportionment of over/under absorbed overheads over WIP, Finished goods and Cost of sales?

   (a) ₹ 0.315 per unit

   (b) ₹ 0.472 per unit

   (c) ₹ 0.787 per unit

   (d) ₹ 1 per unit

5. What is the amount of over/under absorbed overhead apportioned to Work in Progress?

(a) ₹ 9,440

(b) ₹ 42,480

(c) ₹ 18,880

(d) ₹ 70,800

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) ₹ 840

Reason:

Budgeted Machine hour rate (Blanket rate)

$= \frac{₹\ 50,40,000}{6,000\ \text{hours}} = ₹\ 840$ per hour

2. Option (a) ₹ 25,20,000

Reason:

3. Option (a) 1,18,000 over-absorbed

Reason:

	Amount (₹)	Amount (₹)
Total production overheads actually incurred during the period		34,08,000
Less: Amount paid to worker as per court order	4,50,000	
Expenses of previous year booked in the current year	1,00,000	
Wages paid for the strike period under an award	4,20,000	
Obsolete stores written off	36,000	10,06,000
		24,02,000

Less:	Production overheads absorbed as per machine hour rate (3,000 hours × ₹ 840*)		25,20,000
Amount of over absorbed production overheads			**1,18,000**

* Budgeted Machine hour rate (Blanket rate) calculated in part (i)

4. Option (b) ₹ 0.472 per unit

Reason:

Accounting treatment of over absorbed production overheads: As, 40% of the over absorbed overheads were due to defective production policies, this being abnormal, hence should be credited to Costing Profit and Loss Account.

Amount to be credited to Costing Profit and Loss Account

= ₹ 1,18,000× 40% = ₹ 47,200.

Balance of over absorbed production overheads should be distributed over Works in progress, Finished goods and Cost of sales by applying supplementary rate*.

Amount to be distributed = ₹ 1,18,000× 60% = ₹ 70,800

Supplementary rate $= \frac{₹\ 70,800}{1,50,000\ \text{units}} = ₹\ \mathbf{0.472\ per\ unit}$

5. Option (c) ₹ 18,880

Reason:

Apportionment of over absorbed production overheads over WIP, Finished goods and Cost of sales:

	Equivalent completed units	Amount (₹)
Work-in-Progress (80,000 units × 50% ×0.472)	40,000	**18,880**
Finished goods (20,000 units × 0.472)	20,000	9,440
Cost of sales (90,000 units × 0.472)	90,000	42,480
Total	1,50,000	70,800

CASE SCENARIO 51

'Axe Trade', an unregistered supplier under GST, purchased material from Vye Ltd. which is registered supplier under GST. During the month of June 2024, the Axe Traders has purchased a lot of 5,000 units on credit from Vye Ltd. The information related to the purchase are as follows:

Listed price of one lot of 5,000 units	₹ 2,50,000
Trade discount	- @ 10% on listed price
CGST and SGST (Credit available)	- 18% (9% CGST + 9% SGST)
Cash discount	- @ 10%
(Will be given only if payment is made within 30 days.)	
Toll Tax paid	₹ 5,000
Freight and Insurance	₹ 17,220
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

A 20% shortage in material on receipt is expected considering the nature of the raw material.

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

MULTIPLE CHOICE QUESTIONS

1. If Axe Traders pays the supplier within 30 days of purchase, then, what is the total amount of cash discount received from the supplier and how it is treated to calculate material cost?

   (a) ₹ 25,000 & it will not be deducted from the material cost

   (b) ₹ 26,550 & it will be deducted from the material cost

(c) ₹ 26,550 & it will not be deducted from the material cost

(d) ₹ 22,500 & it will not be deducted from the material cost

2. What will be the amount of other expenses and how it is treated in material cost?

(a) ₹ 6,154.40 & it will be added with the material cost

(b) ₹ 6,280.00 & it will be added with the material cost

(c) ₹ 5,344.40 & it will be added with the material cost

(d) ₹ 5,453.47 & it will not be added with the material cost

3. What is the amount of GST and how will it be treated in cost sheet of Axe Traders?

(a) ₹ 40,500 & it will not be added with material cost

(b) ₹ 40,500 & it will be added with material cost

(c) ₹ 45,000 & it will not be added with material cost

(d) ₹ 45,000 & it will be added with material cost

4. What is the total material cost chargeable in the cost sheet of Axe Traders?

(a) ₹ 3,14,000

(b) ₹ 2,73,500

(c) ₹ 2,72,673

(d) ₹ 3,13,874

5. The number of good units and cost per unit of the materials received are:

(a) 5,000 units & ₹ 62.80

(b) 5,000 units & ₹ 54.70

(c) 4,000 units & ₹ 78.50

(d) 4,000 units & ₹ 68.38

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) ₹ 22,500 & it will not be deducted from the material cost

Reason:

Cash discount is received when credit amount is paid within the stipulated period of 30 days. The amount of cash discount to be received from the supplier is:

	Particulars	Amount (₹)
A.	Listed price	2,50,000
B.	Less: Trade Discount @10%	(25,000)
C.	Taxable value (A-B)	2.25,000
D.	Add: GST@18% (18% of C)	40,500
E.	Total amount payable to the supplier	2,65,500
F.	Cash discount @10% (10% of C)	**(22,500)**
G.	Net amount to be paid to the supplier (E-F)	2,43,000

2. Option (b) ₹ 6,280.00 & it will be added with the material cost

Reason:

Particulars	Units	(₹)
Listed Price of Materials	5,000	2,50,000
Less: Trade discount @ 10% on invoice price		(25,000)
		2,25,000
Add: GST @ 18% of ₹ 2,25,000		40,500
		2,65,500
Add: Toll Tax		5,000
Freight and Insurance		17,220
Commission and Brokerage Paid		10,000
Add: Cost of returnable containers:		
Amount deposited ₹ 30,000		
Less: Amount refunded ₹ 20,000		10,000
		3,07,720

Add: Other Expenses @ 2% of Total Cost $\left(\frac{₹\ 3,07,720}{98} \times 2\right)$		6,280
Total cost of material		3,14,000
Less: Shortage material due to normal reasons @ 20%	1,000	-
Total cost of material of good units	4,000	3,14,000
Cost per unit (₹ 3,14,000/4,000 units)		78.5

3. Option (b) ₹ 40,500 & it will be added with material cost

Reason:

Axe Traders is an unregistered supplier in the GST; thus, GST credit is not applicable for it. GST paid on the purchase of the material will be the part of the material cost.

4 Option (a) ₹ 3,14,000

Reason:

Please refer the solution above

5. (c) 4,000 units & ₹ 78.50

Reason:

Please refer the solution above

CASE SCENARIO 52

ABC Pvt Ltd is engaged in the manufacture of a Product Q. The product has the following standard production requirements determined by the technical team of the company post satisfactory completion of test run.

Raw Material Z – 2 units @ ₹ 2 per unit

Skilled labour of – 2.5 hours@ ₹ 5 per hour

Fixed Overheads – ₹ 7.5 per unit

The input of Raw material Z has a yield of 80% everytime when infused into production. The actual quantity of Raw material Z consumed for production during the year was 24,000 units. The Usage variance of Material Z was 2,000 Favourable. Further the actual amount of material cost for the material consumed amounted to ₹ 45,000.

During the said year, the actual working hours were 30,000 for which the labour cost paid by the company amounted to ₹1,20,000. The idle time variance amounted to 10,000 Adverse.

The actual fixed overheads incurred for the year amounted to ₹ 1,50,000 and the expenditure variance was ₹25,000 Favourable.

MULTIPLE CHOICE QUESTIONS

In the context of the above, the following needs to be determined:

1. The Actual output of Product Q produced during the year is:
   (a) 10,000 units
   (b) 12,500 units
   (c) 25,000 units
   (d) 15,000 units
2. The Material price and material cost variance are:
   (a) Price variance – 3,000 Adverse, Cost Variance – 5,000 Adverse
   (b) Price variance – 3,000 Favourable, Cost Variance – 5,000 Favourable

(c) Price variance – 3,000 Favourable, Cost Variance – 8,000 Adverse

(d) Price variance – 5,000 Adverse, Cost Variance – 3,000 Favourable

3. The Standard Hours, Net Actual hours and the idle time are:

(a) Standard Hours – 27,500 Net Actual Hours – 28,000 hours Idle Time – 2,000 hours

(b) Standard Hours – 22,500 Net Actual Hours – 28,500 hours Idle Time – 1,500 hours

(c) Standard Hours – 24,000 Net Actual Hours – 29,000 hours Idle Time – 1,000 hours

(d) Standard Hours – 25,000 hours Net Actual Hours –28,000 hours Idle Time – 2,000 hours

4. Labour Efficiency variance and Labour rate variance are:

(a) Labour Efficiency Variance – 30,000 Favourable Labour rate Variance – 25,000 Adverse

(b) Labour Efficiency Variance – 25,000 Favourable, Labour rate Variance – 30,000 Adverse

(c) Labour Efficiency Variance – 25,000 Adverse, Labour rate Variance – 30,000 Favourable

(d) Labour Efficiency Variance – 30,000 Adverse Labour rate Variance – 25,000 Favourable

5. Fixed Overhead volume variance is:

(a) Fixed Overhead volume variance – 1,00,000 Favourable

(b) Fixed Overhead volume variance – 50,000 Adverse

(c) Fixed Overhead volume variance – 1,00,000 Adverse

(d) Fixed Overhead volume variance – 50,000 Favourable

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) 10,000 units

Reason:

Usage variance of Material Z	= 2,000 F
Usage Variance	= SQ x SP – AQ x SP
SP	= ₹ 2
AQ	= 24,000 units
2 x (SQ – 24,000)	= 2,000
2SQ	= 50,000
Therefore SQ	= 25,000
No of units of Input required per output	= 2
Yield of input	= 80%
	= (25000/2)x80% = 10,000 units.

2. Option (b) Price variance – 3,000 Favourable, Cost Variance – 5,000 Favourable

Reason:

Price variance – 3,000 Favourable,

Cost Variance – 5,000 Favourable

Price variance	= AQ x (SP-AP)
24,000 x (2-1.875)	= 3,000 Favourable.
Cost variance	= SQ x SP – AQ x AP
	= 50,000–45,000=5,000 Favourable.

3. Option (d) Standard Hours – 25,000 hours Net Actual Hours –28,000 hours Idle Time – 2,000 hours

Reason:

Standard Hours – 25,000 hours Net Actual Hours –28,000 hours Idle Time – 2,000 hours

Actual output	= 10,000 units
Standard hours per unit	= 2.5
Therefore standard hours	= 10,000 x 2.5 = 25,000 hours.
Idle time variance	= SR x (Net AH – AH)
5 x (Net AH – 30,000)	= 10,000 Adverse
5 Net AH – 1,50,000	= -10,000
5 Net AH	= 1,40,000
Net AH	= 28,000 hours
Idle time	= 2,000 hours

4. Option (c) Labour Efficiency Variance – 25,000 Adverse, Labour rate Variance – 30,000 Favourable

Reason:

Labour Efficiency Variance	– 25,000 Adverse,
Labour rate Variance	– 30,000 Favourable
Efficiency Variance	= SR x (SH-AH)
	= 5 x (25,000 – 30,000)
	= 25,000 Adverse
Rate Variance	= AH x (SR – AR)
	= 30,000 (5 – 4) [1,20,000/30,000]
	= 30,000 Favourable.

5. Option (c) Fixed Overhead volume variance – 1,00,000 Adverse

Reason:

Fixed Overhead Volume variance – 1,00,000 Adverse

Overhead Volume variance	= Actual Output x SR per unit – Budgeted FOH
Budgeted FOH	= Actual FOH (+/-) Expenditure variance
1,50,000 + 25,000	= 1,75,000
AO x SR	= 10,000 x 7.5 = 75,000
Therefore volume variance	= 75,000 – 1,75,000
	=1,00,000 Adverse.

CASE SCENARIO 53

Popular company produces various articles for student purposes. It has been in industry since last 25 years. Company had a very humble start but gained popularity over the years due to excellent quality products which were sold at very competitive prices. Company has huge reserves and feel that it is also obligated to give back to the society from which it has grown.

Last year management decided to produce and supply special quality school bags, water bottles, & geometry boxes to NGOs, at no price, as a social responsibility. These articles were simple looking but were more durable, that would not have wore-off easily and could have been used for long-term.

This year management wants to add another dimension to this social work. It approached charitable schools and government run schools and offered them the supply of the same articles, at cost. This will help students in these schools to get these things at a very low price compared to market.

The variable costs are ₹ 100, ₹ 80, and ₹ 40 for school bags, water bottles, and geometry boxes, respectively. These articles are made using a single machine. 0.20 hours of machine operation is required for manufacturing 1 unit of school bag. Similarly, machine hours required for each units of water bottle and geometry box is 0.15 hours and 0.10 hours, respectively. Fixed overhead related to machine is ₹ 7,40,000 per year. Machine can operate for 8,000 hours in a year.

Company has decided to sell its 80% capacity production in markets. Rest is divided amongst the 2 undergoing social works, equally.

All Schools requests these items in the ratio of 2:3:5, as per their demand by the school students.

Company wants to set a price for these articles to be offered to the schools. Management has few questions they need the answers to. They assigned the task to their team. Team made rough calculations but as there were too many people on the team, each came up with different answers. As a Chartered accountant, you have been approached. Understand the case closely, find the correct answers and help management to set a price.

MULTIPLE CHOICE QUESTIONS

1. What is allocated fixed cost per unit of School bags, water bottles, and geometry boxes?

   (a) 18.5, 13.875, 9.75

   (b) 18.5, 13.875, 9.25

   (c) 18.5, 13.785, 9.25

   (d) 18.5, 13.785, 9.50

2. If the prices were ₹ 200, ₹ 160, and ₹ 100, what would be the overall break-even point in units in relation to fixed cost allocated to these supplies?

   (a) 308.33 units

   (b) 500 units

   (c) 508.33 units

   (d) 1,000 units

3. Find out the maximum number of units of each article that can be given at the prices given in Part (ii).

   (a) 61, 92, 154

   (b) 200, 300, 500

   (c) 101, 152, 254

   (d) 100, 150, 250

4. What will be the maximum units that can be supplied to the schools of each article?

   (a) 1103, 1645, 2726

   (b) 1093, 1655, 2748

   (c) 1185, 1777, 2962

   (d) 1133, 1675, 2958

5. What should be the correct price for each item as per the management's decision?

(a) 118.50, 93.875, 49.75

(b) 118.50, 93.785, 49.25

(c) 118.50, 93.785, 49.50

(d) 118.50, 93.875, 49.25

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) 18.5, 13.875, 9.25

Reason:

Fixed overhead	= 740000
Total machine hours	= 8000 hours
Fixed OH per hour	= ₹ 92.5
Fixed OH per unit of:	
School bag	= 0.20 x 92.5 = ₹ 18.5
Water bottle	= 0.15 x 92.5 = ₹ 13.875
Geometry box	= 0.10 x 92.5 = ₹ 9.25

2. Option (d) 1,000 units

Reason:

Hours allocated	= 8000 x 10% = 800 hours
Fixed overhead allocated	= 800 x 92.5 = ₹ 74,000
Contribution:	
Bag	= 200-100 = 100
Bottle	= 160-80=80
Geometry	= 100- 40 = 60
Composite contribution	= 100 x 2/10 + 80 x 3 / 10 + 60 x 5/10 = ₹ 74

Overall breakeven point for this assignment is = fixed cost allocated/composite contribution = 74,000/74 = **1,000 units**

3. Option (b) 200, 300, 500

Reason:

1000 units are to be distributed in the ratio of 2:3:5

Bag = 200 units, bottle = 300 units, geometry = 500 units

4. Option (c) 1185, 1777, 2962

Reason:

Total hours	= 800 hours
let total no of units	= X
Supply	= bag 2/10 x X;
bottle	=3 /10 x X;
geometry	= 5/10 x X
Hours	= (2X/10) x 0.20 + (3X/10) x 0.15 + (5X/10) x 0.10
	= 800 hours
X	= 5925

Units of :

Bag	= 2/10 x 5925 = 1185
Bottle = 3/10 x 5925	= 1777.5 or 1777
Geometry	= 5/10 x 5925 = 2962.5 or 2962

5. Option (d) 118.50, 93.875, 49.25

Reason:

Correct price is AT COST.

COST = Marginal Cost Per Unit + Fixed Overhead Cost Allocated Per Unit

	Bag	Bottle	Geometry
Variable cost per unit	100	80	40
Fixed cost per unit	18.5	13.875	9.25
Total	**118.5**	**93.875**	**49.25**

CASE SCENARIO 54

Knowing the hectic schedule of a student preparing for the examination, a homemaker managing work from home or a new parent busy in neonatal care, a freshly qualified professional (Mr. Rishi) entered into a start-up business of manufacturing frozen foods.

The process majorly involve washing and cutting the vegetables (Process I), blanching, cooling and mixing of ingredients with spices (Process II), forming, frying and freezing the final product (Process III).

In Accounts, Mr. Rishi normally transfers the output of one process to another process at cost but, being a young entrepreneur, he is interested in knowing the profit made at each and every process. Thus, it was decided to transfer the output of Process I and II to the next process at cost plus 25%. Further, the output of Process III is also transferred to finished stock at cost plus 33 1/3%.

Following information is extracted from the books of Mr. Rishi for the current year:

	Process I (₹)	Process II (₹)	Process III (₹)	Finished Stock (₹)
Opening stock	8,02,500	14,44,500	21,40,000	24,07,500
Direct materials	42,80,000	34,77,500	26,75,000	--
Direct wages	66,87,500	57,78,000	49,22,000	--
Factory overheads	51,36,000	38,52,000	35,57,750	--
Closing stock	10,70,000	17,12,000	20,86,500	26,75,000
Inter-process profit included in opening stock	NIL	2,14,000	5,35,000	10,70,000

Stock in processes is valued at prime cost. The finished stock is valued at the price at which it is received from Process III.

Mr. Rishi wants you to FIGURE OUT the following to analyse the profit generated at each process:

MULTIPLE CHOICE QUESTIONS

1. What is the transfer price value at which the output of Process I is transferred to Process II?

   (a) ₹ 1,97,95,000

   (b) ₹ 39,59,000

   (c) ₹ 1,58,36,000

   (d) ₹ 1,69,06,000

2. What is the transfer price value at which the output of Process II is transferred to Process III?

   (a) ₹ 1,20,97,476

   (b) ₹ 4,07,93,750

   (c) ₹ 2,86,96,274

   (d) ₹ 3,43,47,000

3. What is the transfer price value at which the output of Process III is transferred to Finished Stock?

   (a) ₹ 5,40,88,500

   (b) ₹ 3,98,91,140

   (c) ₹ 2,94,44,860

   (d) ₹ 6,93,36,000

4. What is the cost value at which the output of Process III is transferred to Finished Stock?

   (a) ₹ 5,40,88,500

   (b) ₹ 3,98,91,140

   (c) ₹ 2,94,44,860

   (d) ₹ 6,93,36,000

5. What is the cost value of closing stock of Process III A/c?

   (a) ₹ 20,86,500

   (b) ₹ 15,64,884

(c) ₹ 3,98,91,140

(d) ₹ 5,21,616

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (a) ₹ 1,97,95,000

Reason:

Process I Account

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
Opening Stock	8,02,500	–	8,02,500	Process II A/c (Transfer)*	1,58,36,000	39,59,000	1,97,95,000
Direct Material	42,80,000	–	42,80,000	Closing stock	10,70,000	–	10,70,000
Direct Wages	66,87,500	–	66,87,500				
Prime Cost	1,17,70,000	–	1,17,70,000				
Manufactur-ing Overheads	51,36,000	–	51,36,000				
Total cost	1,69,06,000	–	1,69,06,000				
Costing Profit and Loss A/c**		39,59,000	39,59,000				
	1,69,06,000	39,59,000	2,08,65,000		1,69,06,000	39,59,000	2,08,65,000

*Transfer price = (Total Cost - Closing Stock) (1 + 25%)

= (1,69,06,000 - 10,70,000) x 1.25

= ₹ 1,97,95,000

**Profit on transfer = (1,69,06,000 - 10,70,000) x .25 = ₹ 39,59,000

2. Option (b) ₹ 4,07,93,750

Reason:

Process II Account

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
Opening Stock	12,30,500	2,14,000	14,44,500	By Process III A/c (Transfer)**	2,86,96,274	1,20,97,476	4,07,93,750
Process I A/c	1,58,36,000	39,59,000	1,97,95,000	Closing stock*	14,77,726	2,34,274	17,12,000
Direct Material	34,77,500	-	34,77,500				
Direct Wages	57,78,000	-	57,78,000				
Prime Cost	2,63,22,000	41,73,000	3,04,95,000				
Manufacturing Overheads	38,52,000	-	38,52,000				
Total cost	3,01,74,000	41,73,000	3,43,47,000				
Costing Profit and Loss A/c***	-	81,58,750	81,58,750				
	3,01,74,000	1,23,31,750	4,25,05,750		3,01,74,000	1,23,31,750	4,25,05,750

* Cost of Closing Stock = $\left(\frac{₹\ 2,63,22,000}{₹\ 3,04,95,000}\right)$ x ₹ 17,12,000 = ₹ 14,77,726

**Transfer price = (Total Cost - Closing Stock) (1 + 25%)

= (3,43,47,000 - 17,12,000) x 1.25 = ₹ 4,07,93,750

***Profit on transfer = (3,43,47,000 - 17,12,000) x .25 = ₹ 81,58,750

3. Option (d) ₹ 6,93,36,000

Reason:

Process III Account

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
Opening Stock	16,05,000	5,35,000	21,40,000	By Finished Stock A/c** (Transfer)	3,98,91,140	2,94,44,860	6,93,36,000
Process II A/c	2,86,96,274	1,20,97,476	4,07,93,750	Closing stock*	15,64,884	5,21,616	20,86,500
Direct Material	26,75,000	--	26,75,000				
Direct Wages	49,22,000	--	49,22,000				
Prime Cost	3,78,98,274	1,26,32,476	5,05,30,750				
Manufacturing Overheads	35,57,750	--	35,57,750				
Total cost	4,14,56,024	1,26,32,476	5,40,88,500				
Costing Profit and Loss A/c***	-	1,73,34,000	1,73,34,000				
	4,14,56,024	2,99,66,476	7,14,22,500		4,14,56,024	2,99,66,476	7,14,22,500

* Cost of Closing Stock = $\left(\frac{₹\ 3,78,98,274}{₹\ 5,05,30,750}\right)$ X ₹ 20,86,500

= ₹ 15,64,884

**Transfer price	= (Total Cost - Closing Stock) (1 + 33 1/3%)
	= (5,40,88,500 - 20,86,500) x (1 + 33 1/3%)
	= ₹ 6,93,36,000
***Profit on transfer	= (5,40,88,500 - 20,86,500) x 33 1/3%
	= ₹ 1,73,34,000

4. Option (b) ₹ 3,98,91,140

Reason:

Refer part (iii) above.

5. Option (b) ₹ 15,64,884

Reason:

Refer part (iii) above.

CASE SCENARIO 55

P Ltd. has gathered cost information from ledgers and other sources for the year ended 31st December 2023. The information are tabulated below:

Sl. No.		Amount (₹)	Amount (₹)
(i)	Raw materials purchased		5,00,00,000
(ii)	Freight inward		9,20,600
(iii)	Wages paid to factory workers		25,20,000
(iv)	Royalty paid for production		1,80,000
(v)	Amount paid for power & fuel		3,50,000
(vi)	Job charges paid to job workers		3,10,000
(vii)	Stores and spares consumed		1,10,000
(viii)	Depreciation on office building		50,000
(ix)	Repairs & Maintenance paid for: - Plant & Machinery	40,000	
	- Sales office building	20,000	60,000
(x)	Insurance premium paid for:		
	- Plant & Machinery	28,200	
	- Factory building	18,800	47,000
(xi)	Expenses paid for quality control check activities		18,000
(xii)	Research & development cost paid for improvement in production process		20,000
(xiii)	Expenses paid for pollution control and engineering & maintenance		36,000
(xiv)	Salary paid to Sales & Marketing mangers		5,60,000

(xv)	Salary paid to General Manager		6,40,000
(xvi)	Packing cost paid for:		
	- Primary packing necessary to maintain quality	46,000	
	- For re-distribution of finished goods	80,000	1,26,000
(xvii)	Fee paid to independent directors		1,20,000
(xviii)	Performance bonus paid to sales staffs		1,20,000
(xix)	Value of stock as on 1st January, 2023:		
	- Raw materials	10,00,000	
	- Work-in-process	8,60,000	
	- Finished goods	12,00,000	30,60,000
(xx)	Value of stock as on 31st December, 2023:		
	- Raw materials	8,40,000	
	- Work-in-process	6,60,000	
	- Finished goods	10,50,000	25,50,000

Amount realized by selling of scrap and waste generated during manufacturing process – ₹ 48,000/-

The board meeting is scheduled to be held in next week and you being an associate to the chief cost controller of the company, has been asked to be prepared with the following figures:

MULTIPLE CHOICE QUESTIONS

1. How much is the prime cost of the company?

   (a) ₹ 5,10,80,600

   (b) ₹ 5,44,40,600

   (c) ₹ 5,36,00,600

(d) ₹ 5,19,20,600

2. How much is the cost of production?

(a) ₹ 5,49,09,600

(b) ₹ 5,50,59,600

(c) ₹ 5,48,73,600

(d) ₹ 5,50,59,000

3. What is the value of cost of goods sold?

(a) ₹ 5,49,09,600

(b) ₹ 5,50,59,600

(c) ₹ 5,48,73,600

(d) ₹ 5,50,59,000

4. How much is the factory cost?

(a) ₹ 5,49,09,600

(b) ₹ 5,50,59,600

(c) ₹ 5,48,73,600

(d) ₹ 5,50,59,000

5. What is the value of cost of sales?

(a) ₹ 5,66,49,600

(b) ₹ 5,50,59,600

(c) ₹ 5,48,73,600

(d) ₹ 5,50,59,000

Answer

1 Option (b) ₹ 5,44,40,600

2. Option (a) ₹ 5,49,09,600

3. Option (b) ₹ 5,50,59,600

4. Option (c) ₹ 5,48,73,600

5. Option (a) ₹ 5,66,49,600

Reason for 1,2,3,4 & 5

Statement of Cost of P Ltd. for the year ended 31st December, 2023:

Sl. No.	Particulars	Amount (₹)	Amount (₹)
(i)	Material Consumed:		
	- Raw materials purchased	5,00,00,000	
	- Freight inward	9,20,600	
	Add: Opening stock of raw materials	10,00,000	
	Less: Closing stock of raw materials	(8,40,000)	5,10,80,600
(ii)	Direct employee (labour) cost:		
	- Wages paid to factory workers		25,20,000
(iii)	Direct expenses:		
	- Royalty paid for production	1,80,000	
	- Amount paid for power & fuel	3,50,000	
	- Job charges paid to job workers	3,10,000	8,40,000
	Prime Cost		5,44,40,600
(iv)	Works/ Factory overheads:		
	- Stores and spares consumed	1,10,000	
	- Repairs & Maintenance paid for plant & machinery	40,000	
	- Insurance premium paid for plant & machinery	28,200	
	- Insurance premium paid for factory building	18,800	
	- Expenses paid for pollution control and engineering & maintenance	36,000	2,33,000
	Gross factory cost		5,46,73,600

	Add: Opening value of W-I-P		8,60,000
	Less: Closing value of W-I-P		(6,60,000)
	Factory Cost		5,48,73,600
(v)	Quality control cost:		
	- Expenses paid for quality control check activities		18,000
(vi)	Research & development cost paid for improvement in production process		20,000
(vii)	Less: Realisable value on sale of scrap and waste		(48,000)
(viii)	Add: Primary packing cost		46,000
	Cost of Production		5,49,09,600
	Add: Opening stock of finished goods		12,00,000
	Less: Closing stock of finished goods		(10,50,000)
	Cost of Goods Sold		5,50,59,600
(ix)	Administrative overheads:		
	- Depreciation on office building	50,000	
	- Salary paid to General Manager	6,40,000	
	- Fee paid to independent directors	1,20,000	8,10,000
(x)	Selling overheads:		
	- Repairs & Maintenance paid for sales office building	20,000	
	- Salary paid to Manager- Sales & Marketing	5,60,000	
	- Performance bonus paid to sales staffs	1,20,000	7,00,000

(xi)	Distribution overheads:		
	- Packing cost paid for re-distribution of finished goods		80,000
	Cost of Sales		5,66,49,600

CASE SCENARIO 56

Pari Ltd. operates in beverages industry where it manufactures soft-drink in three sizes of Large (3 litres), Medium (1.5 litres) and Small (600 ml) bottles. The products are processed in batches. The 5,000 litres capacity processing plant consumes electricity of 90 Kilowatts per hour and a batch takes 1 hour 45 minutes to complete. Only symmetric size of products can be processed at a time. The machine set-up takes 15 minutes to get ready for next batch processing. During the set-up power consumption is only 20%.

(i) The current price of Large, Medium and Small are ₹150, ₹90 and ₹50 respectively.

(ii) To produce a litre of beverage, 14 litres of raw material-W and 25 ml of Material-C are required which costs ₹0.50 and ₹1,000 per litre respectively.

(iii) 20 direct workers are required. The workers are paid ₹880 for 8 hours shift of work.

(iv) The average packing cost per bottle is ₹3

(v) Power cost is ₹7 per Kilowatt -hour (Kwh)

(vi) Other variable cost is ₹30,000 per batch.

(vii) Fixed cost (Administration and marketing) is ₹4,90,00,000.

(viii) The holding cost is ₹1 per bottle per annum.

The marketing team has surveyed the following demand (bottle) of the product:

Large	Medium	Small
3,00,000	7,50,000	20,00,000

MULTIPLE CHOICE QUESTIONS

The following information has been sought from you for the purpose of performance review meeting:

1. Number of large size bottles that can be processed in a batch?

   (a) 5,000 bottles

(b) 1,666 bottles

(c) 3,333 bottles

(d) 8,333 bottles

2. Total number of batches to be run to process medium size bottles

(a) 180

(b) 225

(c) 240

(d) 645

3. Material -W required for small size bottles

(a) 1,26,00,000 ltrs

(b) 1,68,00,000 ltrs

(c) 1,57,50,000 ltrs

(d) 1,51,50,000 ltrs

4. Calculate profit/ loss per batch for large size bottles.

(a) ₹89,03,880

(b) ₹2,12,41,650

(c) ₹4,70,71,840

(d) ₹7,72,17,370

5. Compute Economic Batch Quantity (EBQ) for small size bottles.

(a) 1,34,234

(b) 2,12,243

(c) 3,46,592

(d) 4,42,562

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1 Option (b) 1,666 bottles

Reason:

Working note 1: Maximum number of bottles that can be processed in a batch:

$$= \frac{\text{5,000 ltrs}}{\text{Bottle volume}}$$

Large		Medium		Small	
Qty (ltr)	**Max bottles**	**Qty (ltr)**	**Max bottles**	**Qty (ml)**	**Max bottles**
3	1,666	1.5	3,333	600	8,333

*For simplicity of calculation small fractions has been ignored.

2. Option (b)

Reason:

Working note 2: Number of batches to be run:

		Large	Medium	Small	Total
A	Demand	3,00,000	7,50,000	20,00,000	
B	Bottles per batch (Refer WN-1)	1,666	3,333	8,333	
C	No. of batches [A÷B]	180	225	240	645

*For simplicity of calculation small fractions has been ignored.

3. Option (b)

Reason:

Working note 3:

Quantity of Material-W and Material C required to meet demand:

	Particulars	Large	Medium	Small	Total
A	Demand (bottle)	3,00,000	7,50,000	20,00,000	

B	Qty per bottle (Litre)	3	1.5	0.6	
C	Output (Litre) [A×B]	9,00,000	11,25,000	12,00,000	32,25,000
D	Material-W per litre of output (Litre)	14	14	14	
E	Material-W required (Litre) [C×D]	**1,26,00,000**	**1,57,50,000**	**1,68,00,000**	**4,51,50,000**
F	Material-C required per litre of output (ml)	25	25	25	
G	Material-C required (Litre) [(C×F)÷1000]	**22,500**	**28,125**	**30,000**	**80,625**

4. Option (a)

Reason:

Working note 4: No. of Man-shift required

		Large	Medium	Small	Total
A	No. of batches	180	225	240	645
B	Hours required per batch (Hours)	2	2	2	
C	Total hours required (Hours) [A×B]	360	450	480	1,290
D	No. of shifts required [C÷8]	45	57	60	162
E	**Total manshift [D×20 workers]**	**900**	**1,140**	**1,200**	**3,240**

Working note 5: Power consumption in Kwh

		Large	Medium	Small	Total
					For processing
A	No. of batches	180	225	240	645
B	Hours required per batch (Hours)	1.75	1.75	1.75	1.75
C	Total hours required (Hours) [A×B]	315	393.75	420	1,128.75
D	Power consumption per hour	90	90	90	90
E	**Power consumption in Kwh [C×D]**	**28,350**	**35,437.5**	**37,800**	**1,01,587.5**
F	**Per batch consumption (Kwh) [E÷A]**	**157.5**	**157.5**	**157.5**	**157.5**
For set-up					
G	Hours required per batch (Hours)	0.25	0.25	0.25	0.25
H	Total hours required (Hours) [A×G]	45	56.25	60	161.25
I	Power consumption per hour [20%×90]	18	18	18	18
J	**Power consumption in Kwh [H×I]**	**810**	**1,012.5**	**1,080**	**2,902.5**
K	**Per batch consumption (Kwh) [J÷A]**	**4.5**	**4.5**	**4.5**	**4.5**

Calculation of Profit/ loss per batch:

	Particulars	Large	Medium	Small	Total
A	Demand (bottle)	3,00,000	7,50,000	20,00,000	30,50,000
B	Price per bottle (₹)	150	90	50	
C	**Sales value (₹) [A×B]**	**4,50,00,000**	**6,75,00,000**	**10,00,00,000**	**21,25,00,000**

	Direct Material cost:				
E	Material-W (₹) [Qty in WN-3 × ₹0.50]	63,00,000	78,75,000	84,00,000	2,25,75,000
F	Material-C (₹) [Qty in WN-3 × ₹1,000]	2,25,00,000	2,81,25,000	3,00,00,000	8,06,25,000
G	[E+F]	**2,88,00,000**	**3,60,00,000**	**3,84,00,000**	**10,32,00,000**
H	Direct Wages (₹) [Man-shift in WN-4 × × ₹880]	7,92,000	10,03,200	10,56,000	28,51,200
I	Packing cost (₹) [A×₹3]	9,00,000	22,50,000	60,00,000	91,50,000
	Power cost (₹)				
J	For processing (₹) [WN-5 × ₹7]	1,98,450	2,48,062.5	2,64,600	7,11,112.5
K	For set-up time (₹) [WN-5 × ₹7]	5,670	7,087.5	7,560	20,317.5
L	[J+K]	**2,04,120**	**2,55,150**	**2,72,160**	**7,31,430**
M	Other variable cost (₹) [No. of batch in WN-2 × ₹30,000]	54,00,000	67,50,000	72,00,000	1,93,50,000
N	**Total Variable cost per batch [G+H+I+L+M]**	**3,60,96,120**	**4,62,58,350**	**5,29,28,160**	**13,52,82,630**
O	**Profit/ loss before fixed cost [C-N]**	**89,03,880**	**2,12,41,650**	**4,70,71,840**	**7,72,17,370**
P	Fixed Cost				4,90,00,000
Q	**Total Cost [O-P]**				**2,82,17,370**

5. Option (c)

Reason:

Computation of Economic Batch Quantity (EBQ):

$$EBQ=\sqrt{\frac{2\times D\times S}{C}}$$

D = Annual Demand for the Product = Refer A below

S = Set-up cost per batch = Refer D below

C = Carrying cost per unit per annum =Refer E below

	Particulars	**Large**	**Medium**	**Small**
A	Annual Demand (bottle)	3,00,000	7,50,000	20,00,000
Set-up Cost:				
B	Power cost for set-up time (₹) [Consumption per batch in WN-5 × ₹7]	31.50	31.50	31.50
C	Other variable cost (₹)	30,000	30,000	30,000
D	Total Set-up cost [B+C]	30,031.50	30,031.50	30,031.50
E	Holding cost:	1.00	1.00	1.00
F	**EBQ (Bottle)**	**1,34,234**	**2,12,243**	**3,46,592**

CASE SCENARIO 57

The analysis of cost sheet of A Ltd. for the last financial year has revealed the following information for it's product R:

Elements of Cost	Variable Cost portion	Fixed Cost
Direct Material	30% of cost of goods sold	--
Direct Labour	15% of cost of goods sold	--
Factory Overhead	10% of cost of goods sold	₹ 2,30,000
General & Administration Overhead	2% of cost of goods sold	₹ 71,000
Selling & Distribution Overhead	4% of cost of sales	₹ 68,000

Last year 5,000 units were sold at ₹185 per unit.

MULTIPLE CHOICE QUESTIONS

You being an associate to cost controller of the A Ltd., is expected to answer the followings:

1. What is the cost of goods sold for the last year?
   (a) ₹7,20,000
   (b) ₹7,00,000
   (c) ₹7,10,000
   (d) ₹7,30,000
2. What is the cost of sales for the last year?
   (a) ₹8,00,000
   (b) ₹8,20,000
   (c) ₹8,10,000
   (d) ₹7,90,000

3. The total fixed cost is :

   (a) ₹3,79,000

   (b) ₹3,89,000

   (c) ₹3,59,000

   (d) ₹3,69,000

4. Calculate Break-even Sales (in rupees)

   (a) ₹6,90,882

   (b) ₹7,90,000

   (c) ₹3,89,000

   (d) ₹5,48,692

5. What is the Margin of safety (in %)?

   (a) 26.58%

   (b) 25.31%

   (c) 53.41%

   (d) 34.25%

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) ₹7,00,000

Reason:

Calculation of Cost of Goods Sold (COGS):

COGS = {(DM- 0.3 COGS) + (DL- 0.15 COGS) + (FOH- 0.10 COGS + ₹ 2,30,000) + (G&AOH- 0.02 COGS + ₹ 71,000)}

Or COGS = 0.57 COGS + ₹ 3,01,000

Or $COGS = \frac{₹3,01,000}{0.43} = ₹ 7,00,000$

2. Option (a) ₹8,00,000

Reason:

Calculation of Cost of Sales (COS):

COS = COGS + (S&DOH- 0.04 COS + ₹ 68,000)

Or COS = ₹ 7,00,000 + (0.04 COS + ₹ 68,000)

Or COS = $\frac{₹7,68,000}{0.96}$ = ₹ 8,00,000

3. Option (d) ₹3,69,000

Reason:

Calculation of total Fixed Costs:

Factory Overhead-	₹ 2,30,000
General & Administration OH-	₹ 71,000
Selling & Distribution OH	₹ 68,000
	₹ 3,69,000

4. Option (a) ₹6,90,882

Reason:

Workings:

Calculation of Variable Costs:

Direct Material-	(0.3 × ₹ 7,00,000)	₹ 2,10,000
Direct Labour-	(0.15 × ₹ 7,00,000)	₹ 1,05,000
Factory Overhead-	(0.10 × ₹ 7,00,000)	₹ 70,000
General & Administration OH	(0.02 × ₹ 7,00,000)	₹ 14,000
Selling & Distribution OH	(0.04 × ₹ 8,00,000)	₹ 32,000
		₹ 4,31,000

Calculation of P/V Ratio:

P/V Ratio = $\frac{\text{Contribution}}{\text{Sales}} \times 100$ = $\frac{\text{Sales} - \text{Variable Costs}}{\text{Sales}} \times 100$

= $\frac{(₹185 \times 5,000 \text{ units}) - ₹4,31,000}{₹185 \times 5,000 \text{ units}} \times 100$ = 53.41%

$$\text{Break-Even Sales} = \frac{\text{Fixed Costs}}{\text{P/V Ratio}} = \frac{₹3,69,000}{53.41\%} = ₹\ 6,90,882$$

5. Option (b) 25.31%

Reason:

$$\text{Margin of Safety (\%)} = \frac{\text{Sales - Breakeven sales}}{\text{Sales}} \times 100$$

$$= \frac{₹9,25,000 - ₹6,90,882}{₹9,25,000} \times 100 = 25.31\%$$

CASE SCENARIO 58

The following data are available in respect of Process-I for January 2024:

(1) Opening stock of work in process: 600 units at a total cost of ₹4,200.

(2) Degree of completion of opening work in process:

Material	100%
Labour	60%
Overheads	60%

(3) Input of materials at a total cost of ₹ 55,200 for 9,200 units.

(4) Direct wages incurred ₹ 18,600

(5) Overheads ₹ 8,630.

(6) Units scrapped 200 units. The stage of completion of these units was:

Materials	100%
Labour	80%
Overheads	80%

(7) Closing work in process; 700 units. The stage of completion of these units was:

Material	100%
Labour	70%
Overheads	70%

(8) 8,900 units were completed and transferred to the next process.

(9) Normal loss is 4% of the total input (opening stock plus units put in)

(10) Scrap value is ₹6 per unit.

MULTIPLE CHOICE QUESTIONS

You are required to be ready with the following information:

1. What is the equivalent units for labour?
   (a) 9,800 units
   (b) 8,808 units
   (c) 9,030 units
   (d) 8,838 units
2. What is the total cost of per equivalent units?
   (a) ₹9.08
   (b) ₹10.10
   (c) ₹8.08
   (d) ₹8.68
3. What is the total cost of abnormal gain?
   (a) ₹1,743.36
   (b) ₹1,209.52
   (c) ₹2,506.25
   (d) ₹3,728.16
4. What is the total cost of closing work in process?
   (a) ₹5,709.20
   (b) ₹6,203.20
   (c) ₹5,806.20
   (d) ₹5,734.80
5. What is the cost of the units to be transferred to the next process using the FIFO method?
   (a) ₹50,900.15
   (b) ₹80,303.20

(c) ₹80,800.36

(d) ₹50,300.80

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) 8,838 units

Reason:

Statement of Equivalent Production (FIFO Method)

Input		Output		Equivalent Production					
				Materials		Labour		Overheads	
Details	**Units**	**Details**	**Units**	**%**	**Units**	**%**	**Units**	**%**	**Units**
Opening Stock	600	Finished goods transferred to next process:- from opening stock	600	-	-	40	240	40	240
		- From fresh materials	8,300	100	8,300	100	8,300	100	8,300
		Closing W-I-P	700	100	700	70	490	70	490
Fresh inputs	9,200	Normal loss	392	-	-	-	-	-	-
			9,992		9,000		9,030		9,030
		Less: Abnormal Gain	(192)	100	(192)	100	(192)	100	(192)
	9,800		9,800		8,808		8,838		8,838

2. Option (a) ₹9.08

Reason:

Statement of Cost per equivalent units

Elements		Cost	Equivalent units	Cost per equivalent Unit
	(₹)	**(₹)**		**(₹)**
Material Cost	55,200			

Less: Scrap realisation 392 units @ ₹ 6/- p.u.	2,352	52,848	8,808	6.00
Labour cost		18,600	8,838	2.10
Overheads		8,630	8,838	0.98
Total Cost		80,078		9.08

3. Option (a) ₹1,743.36

Reason:

Cost of Abnormal Gain – 192 Units

	(₹)	(₹)
Material cost of 192 units @ ₹ 6.00/- p.u.	1,152.00	
Labour cost of 192 units @ ₹ 2.10/- p.u.	403.20	
Overheads of 192 units @ ₹ 0.98/- p.u.	188.16	1,743.36

4. Option (a) ₹ ₹5,709.20

Reason:

Cost of closing WIP – 700 Units

Material cost of 700 equivalent units @ ₹ 6.00/- p.u.	**4,200.00**	
Labour cost of 490 equivalent units @ ₹2.10/- p.u.	1,029.00	
Overheads of 490 equivalent @ ₹ 0.98/- p.u.	480.20	5709.20

5. Option (b) ₹80,303.20

Reason:

Calculation of cost of 8,900 units transferred to next process		(₹)
(i)	Cost of opening W-I-P Stock b/f – 600 units	4,200.00
(ii)	Cost incurred on opening W-I-P stock	
	Material cost	—
	Labour cost 240 equivalent units @ ₹ 2.10 p.u.	504.00
	Overheads 240 equivalent units @ ₹ 0.98/- p.u.	235.20
		739.20

(iii)	Cost of 8,300 completed units	
	8,300 units @ ₹9.08 p.u.	75,364.00
	Total cost [(i) + (ii) + (iii))]	80,303.20

CASE SCENARIO 59

Miniso Pvt Ltd a company engaged in the business of manufacturing wireless Bluetooth earphones. The company wishes to track its operating profitability and the margin it needs to maintain to sustain profitability in the long run. Further the company has adopted the marginal costing technique to identify and define operational levels. In this regard the company has provided the following information for the current year:

Opening stock of earphones	-	30,000 units
Selling Price of the earphones	-	₹450 per unit
Variable costs incurred in manufacture	-	₹270 per unit
Units produced during the previous year	-	1,80,000 units
Expected production for the current year	-	2,25,000 units
Expected sales for the current year	-	2,40,000 units
Fixed cost per unit for last year was	-	₹60 per unit
Expected rise in Fixed Cost	-	10%
Expected Increase in Variable cost	-	25%

MULTIPLE CHOICE QUESTIONS

Based on the above information available, the following needs to be determined.

1. The profit that the company will make on achieving its targeted sales amounts to:

   (a) ₹1,51,20,000

   (b) ₹1,62,00,000

   (c) ₹1,71,45,000

   (d) ₹1,72,00,000

2. The units to be sold by the company to achieve Break-even is:
   (a) 57,600 units
   (b) 87,600 units
   (c) 1,05,600 units
   (d) 96,000 units
3. The total fixed cost for the current year post the cost increase amounts to:
   (a) ₹1,08,00,000
   (b) ₹1,48,50,000
   (c) ₹1,18,80,000
   (d) ₹1,44,00,000
4. The quantity of closing stock and its value amounts to:
   (a) Closing stock in units – NIL and Value – NIL
   (b) Closing stock in units – 15,000 and Value – ₹40,50,000
   (c) Closing stock in units – 15,000 and Value – ₹50,62,500
   (d) Closing stock in units – 15,000 and Value – ₹58,05,000
5. Margin of Safety in units amounts to:
   (a) 87,600 units
   (b) 1,52,400 units
   (c) 1,62,000 units
   (d) 1,60,000 units

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (c) ₹1,71,45,000

2. Option (b) 87,600 units

3. Option (c) ₹1,18,80,000

4. Option (c) Closing stock in units – 15,000 and Value – ₹50,62,500

5. Option (b) 1,52,400 units

Reason:

Selling Price	= 450
Less: Variable cost of Prior Year	= 270
Contribution per unit prior year	= 180
Variable cost for current year	= 337.5
Contribution per unit	= 112.5
Total Contribution	= 2,90,25,000 (30,000 x 180 + 2,10,000 x 112.5)
Less: Fixed Cost	**= 1,18,80,000 (1,80,000 x 60 x 110%)**
Profit for the year	**= 1,71,45,000**
Contribution from Opening stock	= 54,00,000 (30,000 x 180)
Balance fixed cost to be covered	= 64,80,000 (1,18,80,000-54,00,000)
Contribution per unit	= 112.5
Units to be to be sold to break even	= 57,600

Therefore total units for break even = 30,000 + 57,600 = 87,600

Opening stock	- 30,000
Add: Manufactured	- 2,25,000
Less: Sales	- (2,40,000)
Closing stock	- 15,000
Cost per unit (VC only)	- 337.5
Closing stock	**- 50,62,500**
Margin of safety in units	= Profit/contribution per unit
	= 1,71,45,000/112.5
Margin of safety in units	**= 1,52,400 units**

CASE SCENARIO 60

The sales department of A Limited is analysing the customer profitability for its Product Z. It has decided to analyse the profitability of its five new customers using activity-based costing method. It buys Product Z at ₹ 5,400 per unit and sells to retail customers at a listed price of ₹ 6,480 per unit. The data pertaining to five customers are:

	Customers				
	A	B	C	D	E
Units sold	4,500	6,000	9,500	7,500	12,750
Listed Selling Price	₹6,480	₹6,480	₹6,480	₹6,480	₹6,480
Actual Selling Price	₹6,480	₹6,372	₹5,940	₹6,264	₹5,832
Number of Purchase orders	15	25	30	25	30
Number of Customer visits	2	3	6	2	3
Number of deliveries	10	30	60	40	20
Kilometers travelled per delivery	20	6	5	10	30
Number of expedited deliveries	0	0	0	0	1

After a detailed analysis and computation, the following activities has been identified and respective cost has been calculated:

Activity	Cost Driver Rate
Order taking	₹4,500 per purchase order
Customer visits	₹ 3,600 per customer visit
Deliveries	₹ 7.50 per delivery Km travelled
Product handling	₹ 22.50 per case sold
Expedited deliveries	₹ 13,500 per expedited delivery

MULTIPLE CHOICE QUESTIONS

You have been assigned the following task of computing different cost information for managerial decision making:

1. How much cost on customer visit is incurred on customer E?
   (a) ₹7,200
   (b) ₹10,800
   (c) ₹21,600
   (d) ₹3,600
2. What is the cost of goods sold for customer D?
   (a) ₹2,43,00,000
   (b) ₹3,24,00,000
   (c) ₹5,13,00,000
   (d) ₹4,05,00,000
3. How much is the cost of expediting delivery for customer A?
   (a) ₹13,500
   (b) ₹27,000
   (c) ₹40,500
   (d) ₹0
4. Compute the customer-level operating income of each of customers A.
   (a) ₹55,72,350
   (b) ₹46,82,550
   (c) ₹47,57,400
   (d) ₹50,57,325
5. Compute the customer-level operating income of each of five retail customers D and E.
   (a) ₹46,82,550 & 50,65,720

(b) ₹55,72,350 & 46,85,500

(c) ₹47,57,400 & 55,72,350

(d) ₹61,88,550 & 50,57,325

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) ₹10,800

2. Option (d) ₹4,05,00,000

3. Option (c) ₹0

4. Option (b) ₹46,82,550

5. Option (d) ₹61,88,550 & 50,57,325

Reason for 1,2,3,4 & 5)

Working note:

1. Computation of revenues (at listed price), discount, cost of goods sold and customer level operating activities costs:

	Customers				
	A	B	C	D	E
Units sold: (a)	4,500	6,000	9,500	7,500	12,750
Revenues (at listed price) (₹): (b) {(a) ×₹6,480)}	2,91,60,000	3,88,80,000	6,15,60,000	4,86,00,000	8,26,20,000
Revenues (at listed price) (₹): (c) {(a) ×Actual selling price)}	2,91,60,000 (4,500 × 6,480)	3,82,32,000 (6,000 × 6,372)	5,64,30,000 (9,500 × 5,940)	4,69,80,000 (7,500 × 6,264)	7,43,58,000 (12,750 × 5,832)
Discount (₹) (d) {(b) – (c)}	0	6,48,000	51,30,000	16,20,000	82,62,000
Cost of goods sold (₹) : (e) {(a) x ₹5,400}	2,43,00,000	3,24,00,000	5,13,00,000	4,05,00,000	6,88,50,000
Customer level operating activities costs					
Order taking costs (₹): (No. of purchase orders × ₹ 4,500)	67,500	1,12,500	1,35,000	1,12,500	1,35,000

Customer visits costs (₹) (No. of customer visits x ₹ 3,600)	7,200	10,800	21,600	7,200	10,800
Delivery vehicles travel costs (₹) (Kms travelled by delivery vehicles x ₹ 7.50 per km.)	1,500	1,350	2,250	3,000	4,500
Product handling costs (₹) {(a) x ₹ 22.50}	1,01,250	1,35,000	2,13,750	1,68,750	2,86,875
Cost of expediting deliveries (₹) {No. of expedited deliveries x ₹ 13,500}	-	-	-	-	13,500
Total cost of customer level operating activities (₹)	1,77,450	2,59,650	3,72,600	2,91,450	4,50,675

Computation of Customer level operating income

	Customers				
	A	B	C	D	E
	(₹)	(₹)	(₹)	(₹)	(₹)
Revenues (At list price) (Refer to working note)	2,91,60,000	3,82,32,000	5,64,30,000	4,69,80,000	7,43,58,000
Less: Cost of goods sold (Refer to working note)	(2,43,00,000)	(3,24,00,000)	(5,13,00,000)	(4,05,00,000)	(6,88,50,000)
Gross margin	48,60,000	58,32,000	51,30,000	64,80,000	55,08,000
Less: Customer level operating activities costs (Refer to working note)	(1,77,450)	(2,59,650)	(3,72,600)	(2,91,450)	(4,50,675)
Customer level operating income	46,82,550	55,72,350	47,57,400	61,88,550	50,57,325

CASE SCENARIO 61

Litto ltd. is a manufacturing company which has as a machine shop cost centre that contains three machines of equal capacities. To operate these three machines nine operators are required i.e. three operators on each machine. Operators are paid ₹ 20 per hour. The factory works for fourty eight hours in a week which includes 4 hours set up time. The work is jointly done by operators. The operators are paid fully for the fourty eight hours. In additions they are paid a bonus of 10 per cent of productive time. Costs are reported for this company on the basis of thirteen four-weekly period.

The company for the purpose of computing machine hour rate includes the direct wages of the operator and also recoups the factory overheads allocated to the machines. The following details of factory overheads applicable to the cost centre are available:

- Depreciation 10% per annum on original cost of the machine. Original cost of each machine is ₹52,000.
- Maintenance and repair per week per machine is ₹60.
- Consumable stores per week per machine are ₹75.
- Power: 20 units per hour per machine at the rate of 80 paise per unit. No power is used during the set-up hours.
- Apportionment to the cost centre: Rent per annum ₹5,400, Heat and Light per annum ₹9,720, foreman's salary per annum ₹12,960 and other miscellaneous expenditure per annum ₹18,000.

MULTIPLE CHOICE QUESTIONS

1. What is the effective machine hour for four-week period?
   (a) 170 hours
   (b) 176 hours
   (c) 189 hours
   (d) 192 hours
2. What is the bonus charges and power expenses for four-week period?
   (a) ₹1,056 and ₹2,816

(b) ₹1,562 and ₹3,560

(c) ₹1,240 and ₹3,325

(d) ₹860 and ₹2,450

3. What is the standing charges for four-week period?

(a) ₹12,357

(b) ₹10,450

(c) ₹13,757

(d) ₹14,226

4. What is the machine expenses for four-week period?

(a) ₹2,500

(b) ₹3,450

(c) ₹3.986

(d) ₹3,756

5. What is the machine hour rate?

(a) ₹99.51

(b) ₹92.25

(c) ₹105.22

(d) ₹86.90

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (b) 176 hours

2. Option (a) ₹1,056 and ₹2,816

3. Option (c) ₹13,757

4. Option (d) ₹3,756

5. Option (a) ₹99.51

Reason for 1,2,3,4 & 5

Effective Machine hour for four-week period

= Total working hours – unproductive set-up time

= {(48 hours × 4 weeks) – {(4 hours × 4 weeks)}

= (192 – 16 hours) =176 hours.

Computation of cost of running one machine for a four week period

$$\text{Machine hour rate} = \frac{₹17,513.54}{176 \text{ hours}} = ₹99.51$$

		(₹)	(₹)
(A)	Standing charges (per annum)		
	Rent	5,400	
	Heat and light	9,720	
	Forman's salary	12,960	
	Other miscellaneous expenditure	18,000	
	Standing charges (per annum)	46,080	
	Total expenses for one machine for four-week period $\left(\frac{₹46,080}{3 \text{ machines} \times 13 \text{ four-week period}}\right)$		1,181.54
	Wages (48 hours × 4 weeks × ₹ 20 × 3 operators)		11,520.00
	Bonus {(176 hours × ₹ 20 × 3 operators) × 10%}		1,056.00
	Total standing charges		13,757.54
B)	Machine Expenses		
	Depreciation $\left(₹52,000 \times 10\% \times \frac{1}{13 \text{ four-week period}}\right)$		400.00
	Repairs and maintenance (₹60 × 4 weeks)		240.00
	Consumable stores (₹75 × 4 weeks)		300.00
	Power (176 hours × 20 units ×₹ 0.80)		2,816.00
	Total machine expenses		3,756.00
(C)	Total expenses (A) + (B)		17,513.54

CASE SCENARIO 62

A 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 fuelled 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 (₹)	60	--
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

You have been approached by the management of A LMV Pvt. Ltd. for consultation on the two options of operating the cab service.

The expected questions that may be asked by the management are as follows:

MULTIPLE CHOICE QUESTIONS

1. What would be the depreciable value of EV Car?
   (a) ₹13,50,000
   (b) ₹15,20,000
   (c) ₹14,40,000
   (d) ₹12,00,000
2. What would be the monthly cost of electricity for an EV car?
   (a) ₹1,425
   (b) ₹1,500
   (c) ₹1,450
   (d) ₹1,525
3. What would be the total cost to be incurred for replacement of tyres for EV car?
   (a) ₹32,000
   (b) ₹24,000
   (c) ₹12,000
   (d) ₹16,000
4. Calculate the operating cost of vehicle per month per car for CNG options.
   (a) ₹36,627.78
   (b) ₹24,000.50
   (c) ₹43.708.33
   (d) ₹16,605.55
5. Calculate the operating cost of vehicle per month per car for EV options
   (a) ₹36,627.78
   (b) ₹24,000.50
   (c) ₹43.708.33
   (d) ₹16,605.55

ANSWERS TO MULTIPLE CHOICE QUESTIONS

1. Option (d) ₹12,00,000

Reason:

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. Option (a) ₹1,425

Reason:

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 (₹)	60	-
F	Power cost per Kwh (₹)	-	7.60
G	**CNG Cost per month (₹) [C×E]**	**4,500**	**-**
H	**Power cost per month (₹) [D×F]**	**-**	**1,425**

3. Option (d) ₹16,000

Reason:

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. Option (a) ₹36,627.78

5. Option (c) ₹43.708.33

Reason for 4 & 5:

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]	4,500	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]**	**36,627.78**	**43,708.33**

CASE SCENARIO 63

Phalsa Ltd. pays its workers on time-basis because their services cannot be tangibly measured. The company's normal working week includes 5 days of 8 hours each. Sometimes, the workers needs to work late at night which was 3 nights of 3 hours each for the current week. The average output produced per worker for the week is 120 units.

Information regarding incentive rate is as follows:

Rate of Payment	Day shift: ₹ 320 per hour
	Night shift: ₹ 450 per hour

However, this time-basis payment made workers lazy, making their expected output lower. As workers started doing more of the night shifts for higher earnings with minimal impact on the outputs, the company decided to shift on to a system of payments on output basis. Information regarding amended incentive rate is as follows:

Time-rate (as usual)	:	₹ 320 per hour
Basic time allowed for 15 units	:	5 hours
Piece-work rate	:	Add 15% to basic piece-rate

In the amended incentive system, the normal weekly working hours remained the same while production increased to 135 units.

MULTIPLE CHOICE QUESTION

1. CALCULATE the labour cost per unit as per the existing incentive system, along with the amended incentive system.

   (a) ₹ 140.42 and ₹ 122.67 respectively

   (b) ₹ 124.81 and ₹ 138.00 respectively

   (c) ₹ 124.81 and ₹ 122.67 respectively

   (d) ₹ 140.42 and ₹ 138.00 respectively

ANSWER TO MULTIPLE CHOISE QUESTION

1. Option (a) Calculation of existing labour cost per unit (time basis)

Reason:

Normal weekly hours = 5 days x 8 hours = 40 hours

Night shift hours = 3 nights x 3 hours = 9 hours

Average production per week = 120 units

Weekly wages:		
Normal shift	(40 hours × ₹ 320)	₹ 12,800
Night shift	(9 hours × ₹ 450)	₹ 4,050
Total wages		₹ 16,850

Labour cost per unit $= \left(\frac{₹\ 16{,}850}{120\ \text{units}}\right)$

= ₹ 140.42

Calculation of amended labour cost per unit (piece basis)

15 units are produced in 5 hours

Therefore, to produce 135 units, hours required is $\left(\frac{5\ \text{hours}}{15\ \text{units}}\right)$ X 135 units

= 45 hours.

Labour cost of producing 135 units:

At basic time rate (45 hours × ₹ 320) = ₹ 14,400

Add: Bonus @ 15% on basic Piece rate

$\left[\left(\frac{₹\ 14{,}400}{135\ \text{units}}\right) \times 15\%\right] \times 135$ units = ₹ 2,160

Earning for the week ₹ 16,560

Labour cost per unit $= \left(\frac{₹\ 16{,}560}{135\ \text{units}}\right)$

= ₹ 122.67

CASE SCENARIO 64

Gaarmentz Ltd. run a sewing factory for medical garments. But, the company suffers from the limiting factor i.e. labor. Each sewing machine needs 100% attention of one person at a particular point of time to operate it. The company has 8 number of alike sewing machines on which 8 operators work separately. The following particulars are furnished for a six months period:

Paid hours for all the 8 operators	9,594 hours
Effective working hours for all the 8 operators	9,360 hours
Average rate of wages per day of 8 hours per operator	₹ 110
Power consumed	₹ 60,125
Supervision and Indirect Labour	₹ 21,450

The following particulars are given for a year:

Insurance	₹ 4,68,000
Sundry Expenses	₹ 7,15,000

Depreciation charged is 10% on the original cost of all the sewing machines.

Repairs and Maintenance comes to 5% of the value of all the sewing machines.

The original cost of all the sewing machines works out to ₹ 41,60,000

MULTIPLE CHOICE QUESTIONS

1. CALCULATE the Comprehensive Machine Hour Rate.
   (a) ₹ 215.86
   (b) ₹ 217.99
   (c) ₹ 116.43
   (d) ₹ 119.34

ANSWER TO MULTIPLE CHOISE QUESTION

1. Option (d) ₹ 119.34

Reason:

Computation of Comprehensive Machine Hour Rate

Particulars	**Amount for six months (₹)**
Operators' wages paid [(9,594 hrs./ 8 hrs.) x ₹ 110]	1,31,918
Power consumed	60,125
Supervision and indirect labour	21,450
Insurance (₹ 4,68,000/2)	2,34,000
Sundry expenses (₹ 7,15,000/2)	3,57,500
Depreciation {(₹ 41,60,000 × 10%)/2}	2,08,000
Repair and maintenance {(5% × ₹ 41,60,000)/2}	1,04,000
Total Overheads for 6 months	**11,16,993**
Comprehensive Machine Hour Rate = $\left(\frac{₹\ 11,16,993}{9,360\ hours}\right)$	**119.34**

CASE SCENARIO 65

Following information is available for the month of March relating to manufacturing of a product:

Particulars	Amount (₹)
Cost of Sales	37,51,540
Stock of Raw material as on 01st March	6,50,000
Direct Wages	11,44,000
Hire charges paid for Plant (indirect expenses)	3,24,740
Salary to office staff	1,78,750
Maintenance of office building	13,000
Depreciation on Delivery van	39,000
Warehousing charges	61,750
Stock of Raw material as on 31st March	1,95,000
Realisable value on sale of scrap	32,500

Factory overheads are 20% of the Prime cost.

MULTIPLE CHOICE QUESTION

1. FIND OUT the value of Raw Material purchased with the help of Statement of Cost.

   (a) ₹ 10,40,000

   (b) ₹ 14,95,000

   (c) ₹ 26,39,000

   (d) ₹ 34,91,540

ANSWER TO MULTIPLE CHOISE QUESTION

1 Option (a) ₹ 10,40,000

Reason:

Statement of Cost for the month of March

Particulars	Amount (₹)	Amount (₹)
Cost of Material Consumed:		
Raw materials purchased	10,40,000**	
Add: Opening stock of raw materials	6,50,000	
Less: Closing stock of raw materials	(1,95,000)	14,95,000
Direct Wages		11,44,000
Prime Cost		26,39,000*
Hire charges paid for Plant (indirect expenses)	3,24,740	
Factory overheads (20% of Prime cost)	5,27,800	8,52,540
Works/ Factory Cost		34,91,540
Less: Realisable value on sale of scrap		(32,500)
Cost of Production/ Cost of Goods Sold		34,59,040
Administrative overheads:		
Maintenance of office building	13,000	
Salary paid to Office staff	1,78,750	1,91,750
Distribution overheads:		
Depreciation on delivery van	39,000	
Warehousing charges	61,750	1,00,750
Cost of Sales		37,51,540

(Reverse calculation to be done to find out the value of Raw materials purchased)

* Prime Cost + 3,24,740 + 20% of Prime Cost = 34,91,540

1.2 Prime Cost = 34,91,540 - 3,24,740

= 31,66,800

Prime Cost = 26,39,000

** Raw materials purchased = 14,95,000 - 6,50,000 + 1,95,000

= 10,40,000

CASE SCENARIO 66

ICT Ltd. belongs to pharmaceutical industries. The chemical process that ICT Ltd. operates convert one compound into three category of medicines viz. BetaTab, Folick and TegriCap. Though BetaTab and Folick are already converted to final product at split-off point, Tegricap needs further processing along with addition of new compound with it.

The market for BetaTab and Folick is highly active, thus the production is sold at split-off point, however, Tegricap can be sold only after further processing.

Following information is provided for the current year:

Products	Quantity sold (tons)	Selling price per ton (₹)
BetaTab	372	7,500
Folick	1,054	5,625
TegriCap	1,472	3,750

The selling price is expected to remain the same for coming years.

The total joint manufacturing costs till split-off point is ₹ 62,50,000 and the amount spent for further processing w.r.t. Tegricap is ₹ 31,00,000

The details regarding closing inventories are as follows:

Products	Completed units (tons)
BetaTab	360
Folick	120
TegriCap	50

MULTIPLE CHOICE QUESTION

1. You are required to COMPUTE the joint cost allocated to BetaTab, Folick and TegriCap using Net realizable value (NRV) method.

   (a) BetaTab- ₹ 15,65,481, Folick - ₹ 33,26,647 and TegriCap - ₹ 13,57,872

(b) BetaTab - ₹ 23,33,985, Folick - ₹ 28,07,478 and TegriCap - ₹ 11,08,537

(c) BetaTab - ₹ 19,27,533, Folick - ₹ 23,18,570 and TegriCap - ₹ 20,03,897

(d) BetaTab - ₹ 11,08,537, Folick - ₹ 28,07,478 and TegriCap - ₹ 23,33,985

ANSWER TO MULTIPLE CHOISE QUESTION

1. Option (b) BetaTab - ₹ 23,33,985, Folick - ₹ 28,07,478 and TegriCap - ₹ 11,08,537

Calculation of total production of BetaTab, Folick and TegriCap

Products	Quantity sold (tons)	Quantity of closing inventories (tons)	Total production
(1)	(2)	(3)	(4) = [(2) + (3)]
BetaTab	372	360	732
Folick	1,054	120	1,174
TegriCap	1,472	50	1,522

Calculation of Net Realisable Value (at split-off point)

	Products			Total (₹)
	BetaTab	Folick	TegriCap	
Total Production (tons) (A)	732	1,174	1,522	
Selling price per ton (₹) (B)	7,500	5,625	3,750	
Final sales value of total production (₹) [(A) x (B)]	54,90,000	66,03,750	57,07,500	1,78,01,250
Less: Additional cost (₹)	-	-	(31,00,000)	(31,00,000)
Net realisable value (₹) (at split-off point)	54,90,000	66,03,750	26,07,500	1,47,01,250

Joint cost allocated using Net Realisable Value (at split-off point):

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

BetaTab = $\left(\frac{₹\ 62,50,000}{₹\ 1,47,01,250}\right)$ x ₹ 54,90,000

= ₹ 23,33,985

Folick = $\left(\frac{₹\ 62,50,000}{₹\ 1,47,01,250}\right)$ x ₹ 66,03,750

= ₹ 28,07,478

TegriCap = $\left(\frac{₹\ 62,50,000}{₹\ 1,47,01,250}\right)$ x ₹ 26,07,500

= ₹ 11,08,537

CASE SCENARIO 67

Ms. Gauri has the business of selling pens. She has setup this pen retailing for over 10 years with good profit volume ratio. Her average cost from the retailing is ₹ 11.25 per unit if she sells 16,000 units and is ₹ 11 per unit if she sells 20,000 units.

For the current month, she also charged ₹ 5,000 towards depreciation and the rental payment due.

The excess of sales revenue over the variable costs is ₹ 3.333 per unit.

MULTIPLE CHOICE QUESTION

1. You are required to CALCULATE Break-even Point (in units), Cash Break-even Point (in units) and Profit Volume Ratio.

   (a) Break-even Point- 6,000 units, Cash Break-even Point- 6,000 units and Profit Volume Ratio- 33.33%

   (b) Break-even Point- 6,000 units, Cash Break-even Point- 4,500 units and Profit Volume Ratio- 25%

   (c) Break-even Point- 4,500 units, Cash Break-even Point- 4,500 units and Profit Volume Ratio- 33.33%

   (d) Break-even Point- 4,500 units, Cash Break-even Point- 4,500 units and Profit Volume Ratio- 25%

ANSWER TO MULTIPLE CHOISE QUESTION

1. Option (b) Break-even Point- 6,000 units, Cash Break-even Point- 4,500 units and Profit Volume Ratio- 25%

$$\text{Variable cost per unit} = \frac{\text{Change in Total cost}}{\text{Change in units}}$$

$$= \left(\frac{(₹\ 11 \times 20{,}000 \text{ units}) - (₹\ 11.25 \times 16{,}000 \text{ units})}{20{,}000 \text{ units} - 16{,}000 \text{ units}}\right)$$

$$= \left(\frac{₹\ 2{,}20{,}000 - ₹\ 1{,}80{,}000}{4{,}000 \text{ units}}\right) = ₹\ 10$$

Fixed cost = Total Cost – Variable cost (at 20,000 units level)

= (₹ 11 x 20,000 units) – (₹ 10 x 20,000 units)

= ₹ 20,000

(i) Break-even Point (in units) = $\left(\frac{\text{Fixed Costs}}{\text{Contribution per unit*}}\right)$

= $\left(\frac{₹\ 20,000}{₹\ 3.333}\right)$

= **6,000 units**

* Contribution is the excess of sales revenue over the variable costs.

(ii) Cash Break-even Point (in units) = $\left(\frac{\text{Cash Fixed Costs**}}{\text{Contribution per unit}}\right)$

= $\left(\frac{₹\ 20,000 - ₹\ 5,000}{₹\ 3.333}\right)$

= **4,500 units**

** depreciation and other non-cash fixed costs are excluded from the fixed costs to compute cash break-even point.

(iii) P/V Ratio = $\frac{\text{Contribution per unit}}{\text{Sale price per unit}}$

= $\left(\frac{₹\ 3.333}{₹\ 10 + ₹\ 3.333}\right)$

= 25%

CASE SCENARIO 68

The accountant for Brilliant Tools Ltd applies overhead based on machine hours. The budgeted overhead and machine hours for the year are ₹ 1,30,000 and 8,000 hours, respectively. The actual overhead and machine hours incurred were ₹ 1,37,500 and 10,000 hours. The cost of goods sold and inventory data compiled for the year is as follows:

Direct Material	₹ 25,000
Cost of Goods Sold	₹ 2,25,000

Units: WIP 50,000 and Finished Goods 75,000

MULTIPLE CHOICE QUESTION

1. What is the amount of over/under absorbed overhead for the year?

   (a) Over absorbed by ₹ 25,000

   (b) Under absorbed by ₹ 25,000

   (c) Over a absorbed by ₹ 32,500

   (d) Under absorbed by ₹ 32,500

ANSWER TO MULTIPLE CHOISE QUESTION

1. Option (a) Over absorbed by ₹ 25,000

Reason:

Overabsorbed by ₹ 25,000

Predetermined Overhead Rate = Budgeted Overhead / Budgeted hours i.e. 130,000 / 8,000

= ₹ 16.25 per hour.

Hence, absorbed overhead = 10,000 X 16.25 = ₹ 1,62,500.

Since actual overhead incurred were ₹ 1,37,500

Hence the overhead were over absorbed by 1,62,500 – 1,37,500 = ₹ 25,000.

CASE SCENARIO 69

The following information is available in respect of Process I: Raw material purchased and introduced 10,000 units @ 5 per unit Raw Material received from store 4000 units @ 6 per unit Direct Labour 40,000 Overheads 28,000 Output of Process is 13,500 units, Normal wastage 5% of inputs Scrap value of wastage 4 per unit

MULTIPLE CHOICE QUESTION

1. The value of Abnormal Gain is:
   (a) ₹ 2062.68
   (b) ₹ 2135.34
   (c) ₹ 2103.70
   (d) ₹ 2093.2

ANSWER TO MULTIPLE CHOISE QUESTION

1. Option (d) ₹ 2093.2

Reason:

Process a/c

Particulars	Units	Amount	Particulars	units	Amount
Raw material	10,000	50,000	Normal loss	700	2,800
Stores	4,000	24,000	Units transferred	13,500	1,41,293.2
Direct Wages		40,000			
Production overheads		28,000			
Abnormal gain	200	2,093.2			
		1,44,093.2			1,44,093.2

Cost per unit= $\frac{1,42,000-2,800}{14,000-700}$ = 10.466 per unit

CASE SCENARIO 70

A hotel has 200 rooms (120 Deluxe rooms and 80 Premium rooms). The normal occupancy in summer is 80% and winter 60%. The period of summer and winter is taken as 8 months and 4 months respectively. Assume 30 days in each month. Room rent of Premium room will be double of Deluxe room. Hotel is expecting a profit of 20% on total revenue, total cost for the year is 2,66,11,200.

MULTIPLE CHOICE QUESTION

1. Calculate the room rent to be charged for Premium room.

   (a) ₹ 450 per room day

   (b) ₹ 900 per room day

   (c) ₹ 380 per room day

   (d) ₹ 760 per room day

ANSWER TO MULTIPLE CHOISE QUESTION

1. (b) ₹ 900 per room day

Reason:

Total Revenue (2,66,11,200/80%) = 3,32,64,000

Calculation of Room Days:

	Deluxe	**Premium**
Summer	120 rooms x 80% x 30 days x 8 months = 23,040	80 rooms x 80% x 30 days x 8 months = 15,360
Winter	120 rooms x 60% x 30 days x 4 months = 8,640	80 rooms x 60% x 30 days x 4 months = 5,760
Total room days	31,680	21,120

Let's assume the room rent of Deluxe room be 'x'

Then rent of Premium room will be '2x'

Therefore: 31,680x + 42,240x = 3,32,64,000

X = 450

Rent of Premium room will be 450 x 2 = ₹ 900 per room day