INTERMEDIATE COURSE

PAPER – 4

COST AND MANAGEMENT ACCOUNTING

[RELEVANT FOR MAY, 2025 EXAMINATION AND ONWARDS]

BOOKLET ON CASE SCENARIOS

BOARD OF STUDIES

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF INDIA

This booklet has been prepared by the faculty of the Board of Studies. 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.

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PREFACE

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!

CASE SCENARIO 1

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 CHOISE 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 2

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 CHOISE 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 3

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 CHOISE 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 4

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 CHOISE 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 $= \frac{\text{BudgetedFixedOverheads}}{\text{BudgetedDays}} \times \text{ActualDays}$ $= 1,09,000/20 \text{ days} \times 19 \text{ days}$	₹ 1,03,550
Actual Fixed Overheads (₹ 1,19,000 + 60% of ₹ 19,200)	₹ 1,30,520
Actual Variable Overheads (₹ 48,000 + 40% of ₹ 19,200)	₹ 55,680

CASE SCENARIO 5

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 CHOISE 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 6

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 CHOISE 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 7

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 CHOISE 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 8

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 CHOISE 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- $\left(\frac{0.95\times1,000\,\text{hr.}}{0.90\times14,000\,\text{m.}}\times14,800\,\text{m.}\right)$ =1,115.87 or 1,116 hrs.

Unskilled labour- $\left(\frac{0.95\times800\,\text{hr.}}{0.90\times14,000\,\text{m.}}\times14,800\text{m.}\right)$ = 892.69 or 893 hrs.

WN- 4: Revised Standard Hours (RSH):

Skilled labour- $\left(\frac{1,000\,\text{hr.}}{1,800\,\text{hr.}}\times2,060\,\text{hr.}\right)$ = 1,144.44 or 1,144 hrs.

Unskilled labour- $\left(\frac{800\,\text{hr.}}{1,800\,\text{hr.}}\times2,060\,\text{hr.}\right)$ = 915.56 or 916 hrs.

CASE SCENARIO 9

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 CHOISE 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 10

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 61to 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 CHOISE 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 11

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 CHOISE 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 12

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 CHOISE 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 13

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 CHOISE 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 14

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 CHOISE 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

$\therefore$ Output by new recruits = 60% of 5,000 = 3,000 units

Loss of output = 5,000 – 3,000 = **2,000 units**

CASE SCENARIO 15

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 CHOISE 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 16

'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 CHOISE 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 17

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 CHOISE 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 18

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 CHOISE 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 19

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 CHOISE 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 20

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 21

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 CHOISE QUESTIONS

1 Option (b) 1,666 bottles

Reason:

Working note 1: Maximum number of bottles that can be processed in a batch:

$$= \frac{5{,}000 \text{ ltrs}}{\text{Bottle volume}}$$

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 22

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 CHOISE 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 23

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 CHOISE 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 24

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:

1. 57,600 units
2. 87,600 units
3. 1,05,600 units
4. 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 CHOISE 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 25

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 CHOISE 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 26

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.

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 CHOISE 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 27

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 CHOISE 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 28

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

$\left[\left(\frac{₹\ 14{,}400}{135\ \text{units}}\right) \text{ x } 15\%\right] \text{ x } 135 \text{ units}$ = ₹ 2,160

Earning for the week ₹ 16,560

Labour cost per unit $= \left(\frac{₹\ 16{,}560}{135\ \text{units}}\right)$

= ₹ 122.67

CASE SCENARIO 29

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 = $\left(\frac{₹\ 11,16,993}{9,360\ \text{hours}}\right)$	**119.34**

CASE SCENARIO 30

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 31

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 32

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 33

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 34

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 35

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