Alpha Academy
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MCQ Book

Updated Till
Suggested Answer : Jan 2025
RTPs : May 2025
MTPs : May 2025

CA INTER
Cost and Management Accounting

CA, CFA(USA), CPA(USA)
PRAVEEN KHATOD

Index & Past Trend Analysis

Page No.	Chapter Name	Average Marks	Jan 2025	Sep 2024	May 2024
1	Intro to Cost & Mngt Accounting	5	5	5	5
3	Material Cost	11	2+4+4	12	2+5+5
26	Employee Cost	10	2+5	4+6	2+6+4
41	Overheads	9	6+8	7	6
51	Activity Based Costing	9	10	8	8
60	Cost Sheet	9	9	8	10
67	Cost Accounting Systems	7	4+5	5	7
69	Unit & Batch Costing	3	5	-	4
81	Job Costing	-	-	4	-
82	Process & Operating Costing	9	8	12	8
95	Joint Products & By-Products	4	2	4	5
108	Service / Operating Costing	9	8	5+5	6+2
127	Standard Costing	12	4+6	9+2	12+4
145	Marginal Costing	10	11	2+11	2+4
173	Budget & Budgetary Control	10	10	6+3	7+4
	Total		30 + 66 + 22 = 118	30 + 65 + 23 = 118	30 + 66 + 22 = 118

Applicable Attempt: May 2025 & Sep 2025

- Students are often confused what to revise on the last day and what not ? To solve this issue, we have prepared a book named "Champions Revision Booklet" which contains - 100% Concepts + Common mistakes students make in each of the concept + Formats of solution + 10 questions from each chapter that you must revise on the last day. Scan the QR code to have a look on this Booklet.

INTRODUCTION TO COST AND MANAGEMENT ACCOUNTING

Study Material

TEST YOUR KNOWLEDGE

Multiple Choice Questions (MCQs)

1. .... is anything for which a separate measurement is required.

    (a) Cost unit

    (b) Cost object

    (c) Cost driver

    (d) Cost centre

2. Which of the following is true about Cost control:

    (a) It is a corrective function

    (b) It challenges the set standards

    (c) It ends when targets achieved

    (d) It is concerned with future

3. Cost units used in power sector is:

    (a) Kilometer (K.M)

    (b) Kilowatt-hour (kWh)

    (c) Number of electric points

    (d) Number of hours

4. Process Costing method is suitable for

    (a) Transport sector

    (b) Chemical industries

    (c) Dam construction

    (d) Furniture making

5. Which of the following is Not true about the cost control and cost reduction:

    (a) Cost control seeks to attain lowest possible cost under best conditions.

    (b) Cost control emphasises on past and present.

    (c) Cost reduction is a corrective function. It operates even when an efficient cost control system exists.

    (d) Cost control ends when targets are achieved.

6. The advantage of using IT in Cost Accounting does not include:

   (a) Integration of various functions

   (b) Stock needs to be reconciled with Goods Received Note

   (c) Reduction in multicity of documents

   (d) Customised reports can be prepared.

7. A taxi provider charges minimum ₹ 80 thereafter ₹ 12 per kilometer of distance travelled, the behaviour of conveyance cost is:

   (a) Fixed Cost

   (b) Semi-variable Cost

   (c) Variable Cost

   (d) Administrative cost.

8. A Ltd. has three production department, and each department has two machines, which of the following cannot be treated as cost centre for cost allocation:

   (a) Machines under the production department

   (b) Production departments

   (c) Both Production department and machines

   (d) A Ltd.

9. Which of the following is an example of functional classification of cost:

   (a) Direct Material Cost

   (b) Fixed Cost

   (c) Administrative Overheads

   (d) Indirect Overheads.

10. Ticket counter in a Railway Station is an example of

    (a) Cost Centre

    (b) Revenue Centre

    (c) Profit Centre

    (d) Investment Centre

ANSWERS

Answers to the MCQs

1.	(b)	2.	(c)	3.	(b)	4.	(b)	5.	(a)	6.	(b)
7.	(b)	8.	(d)	9.	(c)	10.	(b)				

Exam Jan 2025

15. A company is analysing its inventory management practices and has determined that the Economic Order Quantity (EOQ) is 400 units. The cost incurred for placing a single order is ₹25, while the total demand for the year amounts to 8,000 units.

Calculate the Carrying Cost per unit.

(A) ₹ 2.80 per unit

(B) ₹ 1.85 per unit

(C) ₹ 1.58 per unit

(D) ₹ 2.50 per unit

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15.	(D)

Exam Sep 2024

Case Scenario-II

FW Limited manufactures various types of footwear and covers a considerable market share. The footwear made by company are stylish and durable. The management calls for an urgent meeting because it has come to their notice that two of their old permanent customers have moved on to its competitors.

Marketing Manager has stated that there are circumstances when company cannot fulfill the demand of their customers due to shortage of supply and this is the main reason for move on.

Production Manager has stated that production team is working efficiently but workers have to wait long enough for raw material which leads to idle time and low production.

The cost accounts department of FW Limited has furnished the following data for the component B :

Purchase Price	₹4,800 per unit
Trade Discount	2% of purchase price
Total duties (No Credit availed)	8% of purchase price
Insurance Charges	₹62,000 per year
Units purchased during the year	60,000 units
Opening Stock	5,000 units @ ₹5,150 per unit
Closing Stock	4,500 units

Usages per week		Delivery period	
Minimum	1,050 units	Minimum	5 weeks
Maximum	1,200 units	Maximum	9 weeks
Average	1,125 units	Average	7 weeks

Lead time for emergency purchases is 2 weeks.

Additional Information :

- Normal wastage during the storage is 80 units (no realizable value) and abnormal wastage is 40 units.

- Factory works for 365 days in a year.

You are required to calculate the followings (MCQs 6 to 10):

6. Calculate per unit cost of material by using Average Price Method.

    (A) ₹5,100

    (B) ₹5,119

    (C) ₹5,094

    (D) ₹5,133

7. Calculate minimum stock level.

    (A) 10,800 units

    (B) 7,825 units

    (C) 5,250 units

    (D) 2,925 units

8. What will be danger level of stock ?

    (A) 2,400 units

    (B) 7,875 units

    (C) 2,250 units

    (D) 2,240 units

9. Calculate average number of days (round off) for which average inventory level to be held.

    (A) 27 days

    (B) 29 days

    (C) 26 days

    (D) 30 days

10. Calculate amount of Abnormal Loss during storage to be transferred to Costing Profit & Loss Account (based on average price)

    (A) ₹2,04,000

    (B) ₹2,04,760

    (C) ₹2,03,760

    (D) ₹2,05,320

6.	(A)
7.	(D)
8.	(C)
9.	(B)
10.	(A)

Exam Sep 2024

12. In the automotive machine manufacturing sector, a component is manufactured. The Economic Order Quantity (EOQ) for the component is 1,500 units. The cost of placing an order is ₹100, and the carrying cost per annum is 10%. The cost per unit of component is ₹20.

    Calculate the annual demand for this specific automative component.

    (A)   45,500 units

    (B)   75,000 units

    (C)   36,000 units

    (D)   22,500 units

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12.	(D)

RTP Sep 2024

Division A: Case Scenario

Material Cost

1. '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.

(i) 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

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(ii) 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

(iii) 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

(iv) 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

(v) 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

✔ SUGGESTED ANSWERS/HINTS

1. (i) (d) 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

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(ii)   (b)

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 $\left(\dfrac{₹\ 3,07,720}{98} \times 2\right)$		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

(iii)   (b) 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.

(iv)   (a) Please refer the solution above

(v)   (c) Please refer the solution above

RTP May 2024 | Study Material

Division A: Case Scenario

Material Cost

1. 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:

    (i)   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.

(ii)   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

(iii)   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.

(iv)   Calculate saving/ loss in purchase of Material A if the purchase order quantity is equal to EOQ.

    (a)   Profit of Rs. 3,21,201.

    (b)   Loss of Rs. 3,21,201.

    (c)   Profit of Rs. 2,52,500.

    (d)   Loss of Rs. 2,52,500.

(v)   What would the minimum stock level for material A:

    (a)   1,800 kg.

    (b)   1,200 kg.

    (c)   600 kg.

    (d)   2,400 kg.

✔ **SUGGESTED ANSWERS/HINTS**

1. **(i)** **(d)** Monthly Production of X = 30,000 kgs.

Raw Material Required = $\dfrac{30,000}{3} \times 5$ = 50,000 kgs.

Material A $= \dfrac{50,000}{5} \times 3 =$ **30,000 kg.**

Material B $= \dfrac{50,000}{5} \times 2 =$ **20,000 kg.**

(ii) **(a)** Calculation of Economic Order Quantity (EOQ):

Material A $= \sqrt{\dfrac{2 \times \text{Annual consumption} \times \text{Order cost}}{\text{Carrying cost per unit p.a.}}}$

$= \sqrt{\dfrac{2 \times (30,000 \times 12) \times 1,200}{15\% \text{ of } 30}} =$ **13,856 kg.**

Material B $= \sqrt{\dfrac{2 \times (20,000 \times 12) \times 1,200}{5\% \text{ of } 44}} =$ **16,181 kg.**

(iii) **(b)** 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

$= \dfrac{30000}{25} \times 10 \text{ days } = 12,000 \text{ kg.}$

(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. - (30,000/25 × 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.)

(iv) (b) 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.

(v) (c) 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.)

MTP Sep 2024

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.

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   **(5 x 2 = 10 Marks)**

1.   c.   **40,000 units.**

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.   a.   **Order Quantity as per the current inventory policy – 10,000 units and EOQ – 1,000 units**

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.   b.   **Savings from EOQ as Compared to current discount policy – ₹ 20,500**

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.   b.   ₹ 6,400

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.   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.

MTP Sep 2024 Series II

(Tough MCQ, do it only if you can manage)

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 impo8rt 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

1

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:

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

(5 x 2 = 10 Marks)

1. (a) **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. (a) 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. (b) 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   (a) Custom duty 80% x 2,20,000   = 1,76,000

Add: IGST   = 2,37,600

                              4,13,600

5. (c) 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	56 (6,18,336.36/11,040)	93.23 (6,86,163.63/7,360)	

2

good units (total costs/no of good units after normal loss)			
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

13. A company manufactures 5,000 units of a product per month. The cost of placing an order is ₹ 100. The purchase price of the raw material is ₹ 10 per kg. The re-order period is 4 to 8 weeks. The consumption of raw materials varies from 100 kg to 450 kg per week, the average consumption being 275 kg. The carrying cost of inventory is 20% per annum. What is Maximum level of stock?

(a) 4,396 kg.

(b) 5,500 kg

(c) 6,210 kg

(d) 3,956 kg

(2 Marks)

13. (a) **4,396 kg.**

Annual consumption of raw material (A) = (275 kg. × 52 weeks) = 14,300 kg.

Cost of placing an order (O) = ₹ 100

Carrying cost per kg. Per annum (c × i) = ₹ 10 × 20% = ₹ 2

Economic order quantity (EOQ)/ **Reorder Quantity (ROQ)** = $\sqrt{\dfrac{2AO}{C \times i}}$

$$= \sqrt{\dfrac{2 \times 14,300 \text{ kgs.} \times ₹\,100}{₹\,2}}$$

= 1,196 Kg. (Approx)

Reorder level (ROL) = Maximum usage × Maximum re-order period

= 450 kg. × 8 weeks = 3,600 kg.

Maximum level = ROL + ROQ – (Min. usage × Min. re-order period)

= 3,600 kg. + 1,196 kg. – (100 kg. × 4 weeks)

= 4,396 kg.

EMPLOYEE COST AND DIRECT EXPENSES

RTP Jan 2025

Employee Cost and Direct Expenses

3. 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.

   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

3. **(a)** **Calculation of existing labour cost per unit (time basis)**

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 $= \left(\dfrac{₹\ 16{,}850}{120\ units}\right)$

                $= ₹\ 140.42$

Calculation of amended labour cost per unit (piece basis)

15 units are produced in 5 hours

Therefore, to produce 135 units, hours required is $\left(\dfrac{5\ hours}{15\ units}\right)$ X 135 units = 45 hours.

Labour cost of producing 135 units:

At basic time rate (45 hours × ₹ 320) = ₹ 14,400

RTP May 2024 | Study Material

Employee Cost

2. 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

    You being an associate finance to GM(HR), has been asked the following questions:

    (i) 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

(ii)   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

(iii)   What is the cost repairing of defective units?

    (a)   ₹ 75,000

    (b)   ₹ 15,000

    (c)   ₹ 50,000

    d)   ₹ 25,000

(iv)   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

(v)   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

2. **(i)** **(c)** Output by experienced workers in 50,000 hours $= \dfrac{50,000}{10}$

= 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**

(ii) **(a)** Contribution per unit = 20% of ₹ 180 = ₹ 36

Total contribution lost = ₹ 36 × 12,000 units = **₹ 4,32,000**

(iii) **(b)** Cost of repairing defective units = 3,000 units × 0.2 × ₹ 25

= **₹ 15,000**

(iv) **(d)** **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

(v) **(c)** Output by experienced workers in 50,000 hours $= \dfrac{50,000}{10}$

= 5,000 units

∴ Output by new recruits = 60% of 5,000 = 3,000 units

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

MTP Jan 2025

11. The rate of change in the composition of employee force over the average number of employees for the year is computed as 9% under 'separation method'. However, the same rate is computed as 15% and 30% under 'replacement method' and 'flux method' respectively.

Considering the average number of employees on roll during the year as 200, FIND OUT the number of employees -

(i) replaced, (ii) left and discharged and (iii) recruited and joined

(a) Replaced- 18 employees, left and discharged- 30 employees and recruited & joined- 42 employees

(b) Replaced- 30 employees, left and discharged- 42 employees and recruited & joined- 18 employees

(c) Replaced- 30 employees, left and discharged- 18 employees and recruited & joined- 42 employees

(d) Replaced- 42 employees, left and discharged- 18 employees and recruited & joined- 30 employees **(2 Marks)**

11. **(c)** **Replaced- 30 employees, left and discharged- 18 employees and recruited & joined- 42 employees**

(i) **Number of employees replaced:**

Employee Turnover rate (Replacement method)

$$= \left(\frac{\text{No. of Replacements}}{\text{Average number of employees on roll}} \times 100 \right)$$

Or, $\left(\frac{15}{100} \right) = \left(\frac{\text{No. of replacements}}{200} \right)$

Or, Number of Replacements $= \left(\frac{200 \times 15}{100} \right) = 30$

(ii) Number of employees left and discharged:

Employee turnover rate (Separation method)

$$= \left(\frac{\text{No. of Separations (S)}}{\text{Average number of employees on roll}} \times 100 \right)$$

Or, $\quad \left(\dfrac{9}{100} \right) = \left(\dfrac{S}{200} \right)$

Or, $\quad S = 18$

Hence, number of employees left and discharged = 18

(iii) Number of employees recruited and joined:

Employee turnover rate (Flux method)

$$= \left(\frac{\text{No. of Separations (S) + No. of Accessions (A)}}{\text{Average number of employees on roll}} \times 100 \right)$$

Or, $\quad \left(\dfrac{30}{100} \right) = \left(\dfrac{18 + A}{200} \right)$

Or, $\quad A = \left(\dfrac{6000}{100} - 18 \right) = 42$

Hence, number of employees recruited and joined = 42

MTP Jan 2025

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

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

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

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

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

    A. Normal wage rate- ₹ 63 per hour and cost of material- ₹ 1,20,240

    B. Normal wage rate- ₹ 67.5 per hour and cost of material- ₹ 1,22,400

    C. Normal wage rate- ₹ 480 per hour and cost of material- ₹ 90,000

    D. Normal wage rate- ₹ 450 per hour and cost of material- ₹ 87,840

    (2 Marks)

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

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

₹ 1,25,640	$= X + 63Y + ₹ 5,400$
X + 63Y	$= ₹ 1,20,240$ ... (i)

Factory Cost of Mr. Ben (Halsey System) $= X + 60Y + 50\% (75 - 60) Y + (60 \times ₹ 120)$

₹ 1,29,600	$= X + 67.5Y + ₹ 7,200$
X + 67.5Y	$= ₹ 1,22,400$ ... (ii)

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

$$4.5Y = ₹ 2,160$$
$$Y = ₹ 480 \text{ per hour}$$

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

Therefore,

$$X = ₹ 1,20,240 - 63Y$$
$$X = ₹ 1,20,240 - (63 \times ₹ 480)$$
$$X = ₹ 90,000$$

Or, **cost of material = ₹ 90,000**

MTP May 2024

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

   A. 2 hours
   B. 3 hours
   C. 6 hours
   D. 3.5 hours

   (2 Marks)

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

   Time saved $= 8-6 = 2$

   * TT = Total Time Taken

Exam Jan 2025

13. The data pertaining to the worker C in a factory depicts that he is paid at a rate of ₹ 100 per hour and a week comprises 48 hours for a 6 days' work. The allowed absence time is 15 minutes per day for maintenance etc. The job card of C indicates, his chargeable time is scattered for 2 different jobs J1-21 hours and J2-24 hours. Any unaccounted time is attributable for power failure.

Calculate cost of normal idle time and abnormal idle time.

(A) ₹ 100 and ₹ 150

(B) ₹ 150 and ₹ 150

(C) ₹ 150 and ₹ 100

(D) ₹ 100 and ₹ 100

13.	(B)

Exam Sep 2024

13. In a mutual project, both Raj and Bhuvan are contributing their efforts, using identical materials. Raj receives a bonus based on the Rowan plan, while the Halsey plan determines Bhuvan's bonus. The standard time allocated for the project is 150 hours. Raj completes the project in 90 hours, while Bhuvan finishes it in 120 hours. The normal hourly wage rate for Raj is ₹ 30. The total earnings for both workers are equal.

Calculate the normal hourly wage rate to be paid to Bhuvan.

(A) ₹ 26.50

(B) ₹ 24.00

(C) ₹ 22.50

(D) ₹ 28.00

14. On 01-04-2023 number of workers employed in a factory was 150. During the year 30 workers resigned and 5 workers were discharged. Due to resignation and discharge, 15 workers were replaced. For the year 2023-24, labour turnover rate by separation method will be :

(A) 21.43%

(B) 18%

(C) 25%

(D) 30%

13.	(D)
14.	(C)

Case Scenario II

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

The rate of Labour per week for skilled worker is ₹ 120, for semi-skilled workers is ₹ 80 and for unskilled worker is ₹ 60.

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

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

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

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

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

- Total time period taken for the job was 64 weeks.

- Net extra cost spent, in comparison to planned cost, was ₹ 1,04,000.

- Total number of weeks worked by all the type of labourers was 23,040 weeks.

- Skilled and semi-skilled labourers in reality charged ₹ 20 extra per week, whereas unskilled labourers were negotiated to charge ₹ 20 less per week, than what they had charged earlier.

Let say, you are the 3rd management consultant, and you have been given with all this information. Work out calculations and answer the following questions (MCQs 6 to 10) based on the information given above.

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

   (a) 1,82,400 (Adverse)

   (b) 52,800 (Adverse)

   (c) 1,29,600 (Adverse)

   (d) 76,800 (Favourable)

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

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

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

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

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

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

   (a) -10, -30, -40

   (b) -10, -30, +40

   (c) +10, +30, -40

   (d) +10, +30, +40

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

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

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

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

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

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

    (a) Semi-skilled, skilled, & unskilled

    (b) Skilled, semi-skilled, unskilled

    (c) Unskilled, skilled, & semi-skilled

    (d) Unskilled, semi-skilled, & skilled　　　　　　　**(5 x 2 = 10 Marks)**

6. (a) **1,82,400 (Adverse)**

Working Note

Total actual weeks = 23,040

Ratio of actual workers = 7:3:8

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

(7/18 x X x64) + (3/18 x X x 64) + (8/18 x X x 64) = 23,040

X = 360

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

Standard time = 60 weeks

Actual time = 64 weeks

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

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

2. Rate Variance =

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

3. Efficiency Variance =

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

4. Revised Labour Efficiency Rate=

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

5. Labour Mix Variance=

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

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

= Total Labour Efficiency (52,800 A)

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

= Labour Efficiency Variance of Unskilled

52,800A – 1,29,600A = 1,82,400A,

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

	No. of workers	Weeks worked
Skilled	140	140x64= 8,960
Semi-skilled	60	60x64= 3,840
unskilled	160	160x64= 10,240

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

Money saved or spent:

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

Saved = 2,04,800

Spent = 2,56,000

8. (b) -10, -30, +40

Actual weeks   = 23,040

(-) extra   = (1,440)

Planned weeks   =21,600

Original standard ratio = 5:3:4

Standard weeks chart:

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

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

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

Actual weeks is divided in standard ratio of workers

23,040 in 5:3:4

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

10. (c) Unskilled, skilled, & semi-skilled

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

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

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

RTP Jan 2025

Overheads- Absorption Costing Method

4.   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

CALCULATE the Comprehensive Machine Hour Rate.

(a)   ₹ 215.86

(b)   ₹ 217.99

(c)   ₹ 116.43

(d)   ₹ 119.34

4. (d) **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 $= \left(\dfrac{₹\ 11,16,993}{9,360\ hours}\right)$	119.34

RTP Sep 2024

Overheads: Absorption Costing Method

3. 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

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

3. **(a)** 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.

RTP May 2024 | Study Material

Overheads: Absorption Costing Method

3. 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:

(i)   How much was the budgeted machine hour rate used to recover overhead?

    (a)   ₹ 760

    (b)   ₹ 820

    (c)   ₹ 780

    (d)   ₹ 840

(ii)   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

(iii) 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

(iv) 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

(v) 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

3. (i) (d) Budgeted Machine hour rate (Blanket rate)

$$= \frac{₹ 50,40,000}{6,000 \text{ hours}} = ₹ \textbf{840 per hour}$$

(ii) (a) ₹ 25,20,000

(iii) (a)

	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)

(iv) (b) 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 = $\dfrac{₹ 70,800}{1,50,000 \text{ units}}$ = ₹ 0.472 per unit

(v) (c) 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

MTP Sep 2024

13. ABC Manufacturing allocates its factory overhead costs based on machine hours. The total estimated overhead cost for the year is ₹ 6,00,000, and the company expects to use 30,000 machine hours. During the year, job A used 300 machine hours. What amount of overhead costs should be allocated to this job?

(a) ₹ 4,000

(b) ₹ 6,000

(c) ₹ 10,000

(d) ₹ 8,000   **(2 Marks)**

13. (b) Overhead Rate   = Total Estimated Machine Hours/Total Estimated Overhead Cost

= ₹ 6,00,000/30,000 = ₹ 20

Allocated Overhead = Overhead Rate x Machine Hours Used by the Job

= ₹ 20 x 300 hrs = ₹ 6,000

MTP May 2024

6. Based on the data below, what is the amount of the overhead under-/over-absorbed?

   Budgeted overhead – ₹ 5,25,000

   Budgeted machine hours- 17,500

   Actual machine hours- 17,040

   Actual overheads- ₹ 5,20,000

   A.   5,000 under-absorbed

   B.   8,800 under-absorbed

   C.   8,800 over-absorbed

   D.   5,000 over-absorbed   **(2 Marks)**

6.   **B**   Actual Overhead – (Actual machine hours × machine hour rate)

     5,20,000 – (17040 × 30) = 8,800 under absorbed

15. 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.

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 **(2 Marks)**

15. (a) **Overabsorbed by ₹ 25,000**

Predetermined Overhead Rate = Budgeted Overhead / Budgeted hours i.e. 1,30,000 / 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.

12. Pre-determined factory overhead rate was ₹ 15 per labour hour. Actual labour hour worked 60,000. Actual factory overhead was ₹ 11,00,000 however it includes ₹ 26,000 being the wages paid for strike period and overtime wages amounting to ₹ 9,000. It was observed that 2/3 of the under absorbed were due to inflation and rest were due to faulty planning. The amount of over/under absorbed factory overhead transferred to costing P&L will be:

(a)   58,000 under-absorbed

(b)   55,000 over-absorbed

(c)   58,000 over-absorbed

(d)   55,000 under-absorbed   **(2 Marks)**

12.   (a)   58,000 under-absorbed

Particulars	Amount (₹)
Absorption rate	15
Actual hours	60,000
Absorbed Overheads	9,00,000
Actual overheads (11,00,000 - 26,000)	10,74,000
Under absorption	1,74,000
1/3 of 1,74,000	58,000

CONGRATULATIONS

CA Inter Jan 2023 Results

Parisha Costing **97**	**Harsh** Costing **91**	**Sumit** Costing **89**

Parisha Costing 97 · **Harsh** Costing 91 · **Sumit** Costing 89 · **Mustkeem** Costing 86 · **Avni** Costing 83 · **Shreya** Costing 82 · **Mallika** Costing 81 · **Abhinav** Costing 79 · **Aditi** Costing 79

Ansh Costing 78 · **Kunal** Costing 77 · **Prachi** Costing 77 · **Kapil** Costing 77 · **Sumit** Costing 75 · **Krishna** Costing 75 · **Jyoti** Costing 75 · **Deepak** Costing 75 · **Tushya** Costing 74

Shreyansh Costing 74 · **Laxmi** FM&Eco 74 · **Diksha** Costing 73 · **Janvi** Costing 72 · **Praful** Costing 72 · **Khushi** Costing 72 · **Bhavna** Costing 72 · **Niharika** Costing 72 · **Karan** Costing 72
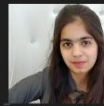
Vanisha FM&Eco 71 · **Himanshu** Costing 71 · **Bulbul** Costing 71 · **Churchill** Costing 71 · **Sreeja** FM&Eco 70 · **Aniruddha** Costing 70 · **Girdhar** Costing 70 · **Tanvi** FM&Eco 69 · **Aishwaryam** FM&Eco 69

Shruti Costing 69 · **Anubhav** Costing 69 · **Yashika** Costing 69 · **Himanshu** Costing 69 · **Chirag** Costing 69 · **Akshara** Costing 68 · **Anshul** Costing 68 · **Uday** Costing 66 · **Astha** Costing 65

Rashi Costing 65 · **Hariom** Costing 65 · **Nikhil** FM&Eco 64 · **Himanshi** Costing 64 · **Adarsh** Costing 64 · **Inder** Costing 64

Khushal Costing 64 · **Prathamesh** Costing 63 · **Anjali** Costing 63

Rohan FM&Eco 60 · **Nakul** FM&Eco 61 · **Naman** Costing 62

& Many Many More Exemptions..

CA, CFA (USA), CPA (USA)
PRAVEEN KHATOD

ACTIVITY BASED COSTING

Case Scenario-I

ABC Company produces three products X. Y and Z. Similar type of material is used in the production of all the three products. The company has been using traditional absorption costing method, using direct labour hours to allocate overheads to its products. The Cost Accountant has suggested considering an activity based costing system. The following information is available in the records of the company.

	X	Y	Z
Production Volume p.a. (In units)	*16,000*	*17,000*	*15,000*
Direct Material per unit	*3 kg*	*4 kg*	*5 kg*
Labour hours per unit	*0.10*	*0.15*	*0.20*
Machine hours per unit	*0.5*	*0.7*	*0.9*
No. of Production runs p.a	*50*	*65*	*60*
No. of purchase orders p.a	*5*	*10*	*15*
No. of order shipped p.a	*25*	*35*	*32*

Activity	*Cost (₹)*	*Cost Driver*
Machine setup costs	*49,000*	*Production Runs*
Machine running costs	*64,128*	*Machine hours*
Purchase cost	*52,050*	*Purchase orders*
Delivery cost	*46,460*	*Orders shipped*

The price of Raw Material is ₹2 per kg.

Direct labour cost per hour is ₹20.

On the basis of above Case Scenario, you are required to answer the following MCQs 1 to 5:

1. What is overhead absorption rate per hour as per traditional absorption costing method?

   (A) ₹ 29.60

   (B) ₹ 29.32

   (C) ₹ 13.78

   (D) ₹ 15.82

2. What is full cost per unit of product Y under traditional absorption costing method?

   (A) ₹ 19.92

   (B) ₹ 4.44

   (C) ₹ 46.32

   (D) ₹ 15.44

3. Under an activity based costing system, what is the cost driver rate for machine set up costs?

   (A) ₹ 280

   (B) ₹ 1.467

   (C) ₹ 6.85

   (D) ₹ 230

4. Under an activity based costing system, the amount of allocated overheads attributable to machine running hours to product X is:

   (A) ₹ 22,848

   (B) ₹ 15,360

   (C) ₹ 25,920

   (D) ₹ 14,000

5. The total cost of product Z as per activity based costing method is :

   (A) ₹ 2,86,073

   (B) ₹ 2,94,905

   (C) ₹ 84,905

   (D) ₹ 2,60,660

Answer Key

MCQ No.	Correct Option
1.	(A)
2.	(D)
3.	(A)
4.	(B)
5.	(B)

MTP May 2024

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

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

A. A = ₹ 47,500; B = ₹ 1,27,500

B. A = ₹ 2,67,500; B = ₹ 2,67,500

C. A = ₹ 1,60,00; B = ₹ 3,75,000

D. A = ₹ 1,47,500; B = ₹ 1,47,500   **(2 Marks)**

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

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

A = 1,250 x 100 + 500 x 70 = 1,60,000

B = 1,250 x 220 + 500 x 200 = 3,75,000

13. One of Pintu Company's cost pools is parts administration. The budgeted overhead cost for that cost pool was ₹ 4,00,000 and the expected activity was 4,000 part types. The actual overhead cost for the cost pool was ₹ 4,20,000 at an actual activity of 5,000 part types. The activity rate for that cost pool was:

(a) ₹ 80 per part type

(b) ₹ 100 per part type

(c) ₹ 105 per part type

(d) ₹ 84 per part type   **(2 Marks)**

13.   b   ₹ 100 per part type

Activity rate = budgeted overhead/budgeted activity level

= 4,00,000/4,000

= ₹ 100 per part type

Study Material

Case Scenarios

1. 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

You have been assigned the following task of computing different cost information for managerial decision making:

(i) How much cost on customer visit is incurred on customer E?

    (a) ₹7,200

    (b) ₹10,800

    (c) ₹21,600

    (d) ₹3,600

(ii) 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

(iii) How much is the cost of expediting delivery for customer A?

    (a) ₹13,500

    (b) ₹27,000

    (c) ₹40,500

    (d) ₹0

(iv) 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

(v) 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 the Case Scenarios

1.

| i. | (b) | ii. | (d) | iii. | (c) | iv. | (b) | v. | (d) |

(i)   (b)   ₹10,800

(ii) (d)   ₹ 4,05,00,000

(iii) (c)   ₹ 0

(iv) (b)   ₹ 46,82,550

(v)   (d)   ₹ 61,88,550 & 50,57,325

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	1,500	1,350	2,250	3,000	4,500

	A	B	C	D	E
₹ 7.50 per km.)					
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

15. Production set up costs ₹ 3,50,000; Total production is 50,000 units of each of the products X and Y; Production in each run is 2,000 units of X or 5,000 units of Y. Company uses activity-based costing to calculate the unit cost of its products. Set-up cost per unit of Y will be

(a) ₹ 4.00

(b) ₹ 2.40

(c) ₹ 2.00

(d) ₹ 3.60

(2 Marks)

15. **(c)** **₹ 2 per unit**

$$\text{Number of runs for X} = \frac{\text{Total production of X}}{\text{Batch size of X}} = 50,000/2,000 = 25 \text{ runs}$$

$$\text{Number of runs for Y} = \frac{\text{Total production of Y}}{\text{Batch size of Y}} = 50,000/5,000 = 10 \text{ runs}$$

$$\text{Set-up cost per run} = \frac{\text{Total set-up cost}}{\text{Total Runs}} = 3,50,000/35 = ₹ 10,000 \text{ per run}$$

$$\text{Set-up cost per unit of Y} = \frac{\text{set-up cost per run}}{\text{Batch size of Y}} = 10,000/5,000 = ₹ 2 \text{ per unit}$$

CONGRATULATIONS

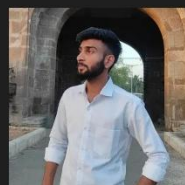## CA FINAL ALL INDIA RANKERS & TOPPERS

Shikha
AIR 2

Ayush
AIR 14

Sagar
AIR 25

Gourav
AIR 38

Simansh
AIR 47

Bhavika
AIR 49

Shikha SFM 91	Piyush SFM / SCMPE 85 / 70	Rukaiya SFM 83	Sagar SFM / SCMPE 82 / 60	Ganesh SFM 81	Harsh SFM 78	Vash SFM 78	Jay SFM 78	Prakhar SFM 77
Manish SFM 76	Sameeksha SFM 75	Pratyush SFM 75	Prateik SFM 74	Abhishek SFM 74	Nishant SFM 73	Riya SFM 73	Abbas SFM 72	Sagar SFM 72
Ayush SCMPE 72	Rahul SFM 71	Bhagyashree SFM 71	Ilyas SFM 71	Ritik SFM 70	Garima SFM 70	Shri SFM 70	Durga SCMPE 70	Sanskar SFM 70
Megha SCMPE 70	Aman SFM 69	Simansh SFM 69	Abhinandan SFM 69	Jayant SFM 68	Reena SFM 68	Kartikey SFM 68		
Moiz SFM 67	Gaurav SFM 66	Pallavee SFM 66	Bhanu SFM / SCMPE 65 / 62					
Prakhar SFM 65	Ashi SFM 65	Ajab SFM 65	Deeksha SCMPE / SFM 64 / 60					
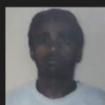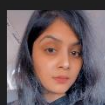
& Many Many More Exemptions..

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COST SHEET

RTP Jan 2025

Cost Sheet

5. 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.

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

5. (a) 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

5. What would be Prime cost from below information?

Direct materials Purchased   :   ₹ 75,000

Direct labour   :   ₹ 45,000

Direct expenses   :   ₹ 15,000

Manufacturing overheads   :   ₹ 22,500

Direct materials consumed   :   ₹ 67,500

A. ₹ 1,35,000

B. ₹ 1,27,500

C. ₹ 1,57,500

D. ₹ 1,50,000   (2 Marks)

5.   B   Direct labour   :   ₹ 45,000

Direct expenses   :   ₹ 15,000

Direct materials consumed   :   ₹ 67,500

Prime Cost   ₹ 1,27,500

MTP May 2024 Series I | Study Material

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.

You are asked to calculate the followings:

You are asked to calculate the followings:

i.   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

ii.   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

iii.   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

iv.   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

v.   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   **(5 x 2 = 10 Marks)**

2. **i. D**

    ii. C   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

    iii. A   Car hire charges including GST @5%, please refer the cost sheet

    iv. B   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

    v. A   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**

COST ACCOUNTING SYSTEMS

MTP Jan 2025

12. WHICH of the following is the correct journal entry as would appear in the cost books when there is under recovery of overheads?

A. Cost of Sales A/c.................................... Dr.   xxx

   To Administrative Overhead Control A/c   xxx

B. Production Overhead Control A/c.....................Dr.   xxx

   To Work-in-Process Ledger Control A/c   xxx

C. Costing Profit & Loss A/c................................Dr. xxx

   To Administrative Overhead Control A/c   xxx

D. Work-in-Process Ledger Control A/c..................Dr. xxx

   To Production Overhead Control A/c   xxx

(2 Marks)

12.   C

12. WHICH of the following item is not the cause of differences in Financial and Cost Accounts?

    (a)   Income tax not treated in Cost Accounts

    (b)   Dividends credited in Financial Accounts

    (c)   Losses on the sale of investments not treated in Financial Accounts

    (d)   Cost Accounts showing notional depreciation on the assets fully depreciated for which book value is nil   **(2 Marks)**

12. (c) **Losses on the sale of investments not treated in Financial Accounts**

UNIT & BATCH COSTING

Study Material

Case Scenarios

1. Arnav 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

    The following information has been sought from you for the purpose of performance review meeting:

    (i)   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

(ii)   Total number of batches to be run to process medium size bottles

    (a)   180

    (b)   225

    (c)   240

    (d)   645

(iii)   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

(iv)   Calculate total profit/ loss per batch.

    (a)   ₹ 3,46,28,460

    (b)   ₹ 2,56,28,360

    (c)   ₹ 2,82,17,370

    (d)   ₹ 1,88,56,360

(v)   Compute Economic Batch Quantity (EBQ) for small size bottles.

    (a)   1,34,234 ltrs

    (b)   2,12,243 ltrs

    (c)   1,57,882 ltrs

    (d)   3,46,592 ltrs

Answers to the Case Scenarios

1.

i.	(b)	ii.	(b)	iii.	(b)	iv.	(c)	v.	(d)

(i)   (b)   Working note 1: Maximum number of bottles that can be processed in a batch:

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

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.

(ii)   (b)   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.

(iii)   (b)   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

(iv) (c) **Workings:**

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**

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

		Large	Medium	Small	Total
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 Profit [O-P]				2,82,17,370

(v) (d) 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**

MTP Jan 2025

14. Due to technical and economical reasons, F8 Ltd. manufactures in batch. The latest contract requires the company to supply 9,000 bushings per month to G4 Ltd. The company has estimated that each set up for manufacturing the bushings will cost ₹ 16,002.25 and the inventory holding cost per bushing per annum will come to ₹ 60.

HOW many runs the company need to make throughout the year to complete the demand?

A. 5 runs

B. 10 runs

C. 15 runs

D. 20 runs   **(2 Marks)**

14. C   Annual demand   = 9,000 x 12 = 1,08,000

Economic Batch Quantity (EBQ):

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

$$= \sqrt{\frac{2 \times 1,08,000 \times 16,002.25}{60}}$$

= 7,590 bushings

Number of runs $= \dfrac{1,08,000}{7,590} = 14.23 = $ **15 runs**

MTP Sep 2024

15.   A company uses batch costing and incurs a setup cost of ₹ 20,000 for a batch of 300 units. If direct materials cost ₹ 20 per unit and direct labor costs ₹ 10 per unit, what is the total cost of the batch?

   (a)   ₹ 25,000

   (b)   ₹ 29,000

   (c)   ₹ 32,000

   (d)   ₹ 7,000   **(2 Marks)**

15.   **(b)**   Total cost ₹ 20,000 + (300 units × (₹ 20 + ₹10)) = ₹ 29,000

MTP Sep 2024

11.   A FMCG company has an annual demand of 50,000 units for its specific product whose setting up cost per batch is ₹ 10,000 and carrying cost per unit per month is ₹ 1. What is the Economic Batch Quantity?

   (a)   7,071 units

   (b)   10,000 units

   (c)   12,641 units

   (d)   9,129 units   **(2 Marks)**

11. d   9,129 units

Annual demand (D) = 50,000 units

Setup cost per batch (S) = ₹ 10,000

Carrying cost per unit per month (C) = ₹ 1

$$EBQ = \sqrt{\frac{2 \times D \times S}{C}}$$

= 9,129 units

MTP May 2024

7. A customer has been ordering 80,000 caps during the year. It is estimated that it costs ₹ 1 as inventory holding cost per cap per month and that the set up cost per run of cap manufacture is ₹ 3,500

What is optimum run size of cap manufacture?

A.   12 runs

B.   10 runs

C.   15 runs

D.   7 runs   **(2 Marks)**

7.   A   Optimum batch size or Economic Batch Quantity (EBQ):

$$EBQ = \sqrt{\frac{2DS}{C}} = \sqrt{\frac{2 \times 80,000 \times 3,500}{12}} = 6,832 \text{ units.}$$

Number of Optimum runs = 80,000 ÷ 6,832 = 11.70 or 12 run

Case Scenario I

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

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

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

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

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

Assume 365 days in a year.

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

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

   (a) ₹ 80,00,000

   (b) ₹ 93,00,000

   (c) ₹ 1,03,00,000

   (d) ₹ 33,00,000

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

(a) ₹ 40,00,000

(b) ₹ 35,00,000

(c) ₹ 53,00,000

(d) ₹ 33,00,000

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

(a) 65,159 bags

(b) 77,139 bags

(c) 93,000 bags

(d) 86,503 bags

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

(a) 7,746 bags and 24 runs

(b) 8,000 bags and 23 runs

(c) 6,503 bags and 28 runs

(d) 5,478 bags and 33 runs

5. What is the interval between two consecutive runs?

(a) 11 days

(b) 10 days

(c) 15 days

(d) 19 days

1. (c) ₹ 1,03,00,000

2. (d) ₹ 33,00,000

    Working note

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

3. (b) 77,139 bags

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

                                       = ₹ 57.22

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

    Break-even point (in number of bags)

                           = Fixed cost/Contribution per bag

                           = ₹33,00,000/₹42.78

                           = 77,139 bags

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

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

Where,

D = no. of bags to be produced annually

S = Set up cost per production run

C = Carrying cost per unit per annum

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

   = 5,478 bags

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

   = 32.86 or 33 runs

5. (a) **11 days**

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

JOB COSTING

13. ABC Manufacturing allocates its factory overhead costs based on machine hours. The total estimated overhead cost for the year is ₹ 6,00,000, and the company expects to use 30,000 machine hours. During the year, job A used 300 machine hours. What amount of overhead costs should be allocated to this job?

(a) ₹ 4,000

(b) ₹ 6,000

(c) ₹ 10,000

(d) ₹ 8,000   **(2 Marks)**

13. **(b)** Overhead Rate   = Total Estimated Machine Hours/Total Estimated Overhead Cost

= ₹ 6,00,000/30,000 = ₹ 20

Allocated Overhead = Overhead Rate x Machine Hours Used by the Job

= ₹ 20 x 300 hrs = ₹ 6,000

PROCESS & OPERATION COSTING

RTP Jan 2025

Process Costing

2. 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:

(i) 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

(ii) 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

(iii) 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

(iv) 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

(v) 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

2. (i) (a) 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				
Manufacturing 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

(ii) (b) 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 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 $= \left(\dfrac{₹\ 2,63,22,000}{₹\ 3,04,95,000}\right) \times ₹\ 17,12,000 = ₹\ 14,77,726$

**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

(iii) (d) 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 $= \left(\dfrac{₹\,3,78,98,274}{₹\,5,05,30,750}\right) \times ₹\,20,86,500$

$= ₹\,15,64,884$

**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%

$= ₹\,1,73,34,000$

(iv) (b) Refer part (iii) above.

(v) (b) Refer part (iii) above.

Process Costing

4. 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 The value of Abnormal Gain is:

    (a)   ₹ 2062.68

    (b)   ₹ 2135.34

    (c)   ₹ 2103.70

    (d)   ₹ 2093.2

4.   **(d)**   ₹ 2093.2

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= $\dfrac{1,42,000-2,800}{14,000-700}$ = 10.466 per unit

Exam Sep 2024

Case Scenario I

Sagar Limited, an oil refinery uses Process Costing for determining the cost of each process. Management of Sagar Limited is confused about method of valuation of WIP. They have FIFO and Weighted Average Cost methods under consideration.

Finance manager Mr. Sahil has put forward that Weighted Average Cost method is suitable when there are significant fluctuations in. price and quantity. In this method, calculation has to be done at every purchase and it is a complex and time-consuming method.

He also stated that price and quantity of input and output material of Sagar Limited is almost same for whole year; hence FIFO method would be more suitable for the company. He also revealed that in oil refinery industry; FIFO method is preferred over Weighted Average Cost method and switching to FIFO method will save time and money.

He further stated that by using FIFO method closing WIP is valued at current cost and provided the following information:

Opening WIP : 12,000 Units, Total cost ₹ 1,66,200.

Degree of Completion :	Material	-	100%
	Labour and Overhead	-	80%

Material introduced: (74,500 Units) ₹ 4,76,465

    Direct Labour   ₹ 3,70,395

    Direct Overhead   ₹ 2,96,316

Units Scrapped : 1,900 units Degree of Completion :

            Material   100%

            Labour and Overhead 70%

Closing WIP : 2,600 units Degree of Completion:

        Material   100%

        Labour and Overhead   60%

Rest of the units were transferred to next process.

Rest of the units were transferred to next process.

Normal Loss is 2% of total input unit including opening work-in-process. Realizable value of normal loss is ₹ 2 per unit deducted from cost of material introduced.

You are required to calculate the following using FIFO method (MCQs 1 to 5) :

1.   Equivalent units of Material and Material cost per unit

(A)   86,500 units and ₹ 5.50 per unit

(B)   74,500 units and ₹ 6.39 per unit

(C)   72,770 units and ₹ 6.50 per unit

(D)   72,600 units and ₹ 6.56 per unit

2.   Equivalent units of labour and overheads and total cost per unit

(A)   82,490 units and ₹ 8.08 per unit

(B)   74,079 units and ₹ 9.00 per unit

(C)   75,290 units and ₹ 8.85 per unit

(D)   79,790 units and ₹ 8.35 per unit

3.   Value of abnormal loss to be shown in process account

(A)   ₹ 2,176.00

(B)   ₹ 2,182.00

(C)   ₹ 2,168.35

(D)   ₹ 1,896.52

4.   Value of units transferred to next process

(A)   ₹ 11,10,660

(B)   ₹ 12,75,600

(C)   ₹ 12,51,200

(D)   ₹ 12,72,800

5.   Value of closing WIP

(A)   ₹ 31,096

(B)   ₹ 31,044

(C)   ₹ 30,940

(D)   ₹ 28,340

Answer Key

Question No.	Answer
1.	(C)
2.	(B)
3.	(A)
4.	(D)
5.	(C)

MTP Sep 2024

12. 1200 Kg of a material were input to a process in a period. The normal loss is 8% of input

   There is no opening or closing work-in-progress. Output in the period was 1100 Kg. What was the abnormal gain/loss in the period?

   (a)   Abnormal gain of 12 Kg

   (b)   Abnormal loss of 12 kg

   (c)   Abnormal gain of 108 Kg

   (d)   Abnormal loss of 4 kg   **(2 Marks)**

12.   (d)   Expected Output   = Input Material−Normal Loss

                Expected Output   = 1,200 Kg−96 Kg=1,104 kg

                Abnormal loss   = 1,104 kg – 1,100 kg = 4 kg

MTP May 2024

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

    A. ₹ 2,000

    B. (₹ 5,000)

    C. (₹ 2,500)

    D. ₹ 3,000   **(2 Marks)**

6.   A   Abnormal gain units = 7600 - [8000 - 800] = 400 Abnormal gain = [40,000 - (800 x 5)]/ 7200 units x 400 units = 2,000

MTP May 2024 | Study Material

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.

The following information are required for managerial decisions:

i. 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

ii. 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.

iii. 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

iv. 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

v. Value of output transferred to finished goods is:
    A. ₹ 22,57,200
    B. ₹ 20,06,400
    C. ₹ 22,44,000
    D. ₹ 19,27,200   (5 x 2 = 10 Marks)

PART I - Case Scenario based MCQs

1. i. D

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

ii. A

Total loss	800 litres
Normal loss (10% of fresh input i.e. 3,800)	380 litres
Abnormal loss	420 litres

iii. B

Calculation of Equivalent production units

Input Details	Units	Output Particulars	Units	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

iv. A

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

v. C

Value of output transferred to finished goods

Output transferred (Units) × Equivalent cost per unit

3,400 Litres × ₹660 = ₹22,44,000

14. A firm introduced 3,000 units of material in the manufacturing process. During the period 2,500 units were completed and transferred to next process. However, the degree of completion on remaining 500 units was 100%, 60%, and 30% for materials, labour and overheads respectively. Which one of the following is the equivalent complete units with regard to labour?

   (a) 2,500

   (b) 2,800

   (c) 2,650

   (d) 2,500 **(2 Marks)**

14. **(b)   2,800 units**

   Equivalent Units   = Units Completed + (Units in Process x Degree of Completion)

   Equivalent Units for Labour = 2,500 + (500 x 0.60)

                                = 2,800 units

JOINT & BY PRODUCTS

Exam Jan 2025

12. Two products Y and Z are obtained in a crude form and require further processing at a cost of ₹ 6 for Y and ₹ 5 for Z per litre before the products can be sold in the market. The final prices of product Y and Z are ₹ 15 and ₹ 8.75 per litre respectively. The company earns a net margin of 25% on Cost.

The following data is available for output of both the products for the year

Y 8,000 Litres

Z 6,000 Litres

A joint cost of ₹ 60,000 was incurred for the year and company apportions the joint costs on the basis of net realisable value after further processing.

Calculate the joint cost per unit of product Y.

(A) ₹4.74

(B)   ₹5.00

(C) ₹5.625

(D) ₹6.00

12.	(D)

RTP Jan 2025

Joint Products and By products

6. 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

    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

6. (b) 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 $= \left(\frac{₹\ 62,50,000}{₹\ 1,47,01,250}\right) \times ₹\ 54,90,000$

$= ₹\ 23,33,985$

Folick $= \left(\frac{₹\ 62,50,000}{₹\ 1,47,01,250}\right) \times ₹\ 66,03,750$

$= ₹\ 28,07,478$

TegriCap $= \left(\frac{₹\ 62,50,000}{₹\ 1,47,01,250}\right) \times ₹\ 26,07,500$

$= ₹\ 11,08,537$

Case Scenario II

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.

You are required to FIGURE OUT the following for managerial decision (MCQs 6 to 10):

6. 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

7. 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

8. 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

9. 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

10. 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. **(5 x 2 Marks)**

6. C

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

7. D

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 = $\dfrac{\text{Total joint cost}}{\text{Total physical value}}$ x Physical units of each product

For Sodium hydroxide = $\dfrac{₹\,40,05,000}{40,050\ \text{tonnes}}$ x 24,030 tonnes

= ₹ 24,03,000

For Halogen = $\dfrac{₹\,40,05,000}{40,050\ \text{tonnes}}$ x 16,020 tonnes

= ₹ 16,02,000

8. A

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 = $\dfrac{\text{Total joint cost}}{\text{Total sale revenue}}$ x Sale revenue of each product

For Sodium hydroxide = $\dfrac{₹\,40,05,000}{₹\,48,06,000}$ x 24,03,000 = ₹ 20,02,500

For Halogen = $\dfrac{₹\,40,05,000}{₹\,48,06,000}$ x 24,03,000 = ₹ 20,02,500

9. **B**

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 of each product $= \dfrac{\text{Total joint cost}}{\text{Total Net Realisable Value}} \times$ Net Realisable Value

For Sodium hydroxide $= \dfrac{₹\,40,05,000}{₹\,56,07,000} \times 24,03,000$

$= ₹\,17,16,429$

For Halogen $= \dfrac{₹\,40,05,000}{₹\,56,07,000} \times 32,04,000$

$= ₹\,22,88,571$

10. **C**

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.

MTP Jan 2025

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

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

During the month of March, company incurred joint production costs of ₹ 1,30,00,000. As the primary products are not freely marketable at the split-off point, they are processed further.

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

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

Particulars	P¹	P²	R¹²
Output (kg.)	1,95,000	3,90,000	81,250
Selling price per kg.	₹ 200	₹ 120	₹ 40
Further processing costs	₹ 26,00,000	₹ 39,00,000	-

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

(a) ₹ 65,00,000

(b) ₹ 97,50,000

(c) ₹ 39,00,000

(d) ₹ 32,50,000   **(2 Marks)**

15. **(a) ₹ 65,00,000**

Calculation of Net joint costs to be allocated:

Particulars	Amount (₹)
Joint Costs	1,30,00,000
Less: Net Realizable value of by-product R¹² (81,250 kg. × ₹ 40)	32,50,000
Net joint costs to be allocated	97,50,000

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

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

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

Study Material

Case Scenarios

1. Pokemon Chocolates manufactures and distributes chocolate products. It purchases Cocoa beans and processes them into two intermediate products:

    Chocolate powder liquor base

    Milk-chocolate liquor base

    These two intermediate products become separately identifiable at a single split off point. Every 500 pounds of cocoa beans yields 20 gallons of chocolate – powder liquor base and 30 gallons of milk-chocolate liquor base.

    The chocolate powder liquor base is further processed into chocolate powder. Every 20 gallons of chocolate-powder liquor base yields 200 pounds of chocolate powder. The milk-chocolate liquor base is further processed into milk-chocolate. Every 30 gallons of milk-chocolate liquor base yields 340 pounds of milk chocolate.

    Production and sales data for October, 2023 are:

Cocoa beans processed	7,500 pounds
Costs of processing Cocoa beans to split off point (including purchase of beans)	₹ 7,12,500

	Production	Sales	Selling price
Chocolate powder	3,000 pounds	3,000 pounds	₹ 190 per pound
Milk chocolate	5,100 Pounds	5,100 Pounds	₹ 237.50 per pound

    The October, 2023 separable costs of processing chocolate-powder liquor into chocolate powder are ₹ 3,02,812.50. The October 2023 separable costs of processing milk-chocolate liquor base into milk-chocolate are ₹ 6,23,437.50.

    Pokemon full processes both of its intermediate products into chocolate powder or milk-chocolate. There is an active market for these intermediate products. In October, 2023, Pokemon could have sold the chocolate powder liquor base for ₹ 997.50 a gallon and the milk-chocolate liquor base for ₹ 1,235 a gallon. You are required to show how the joint cost of ₹ 7,12,500 would be allocated between the chocolate powder and milk-chocolate liquor bases :

(i) how much joint cost is allocated between the chocolate powder and milk-chocolate liquor bases respectively using Sales value at split off point?

   (a) ₹2,22,656.25 and ₹4,89,843.75

   (b) ₹2,49,375 and ₹4,63,125

   (c) ₹2,21,587.50 and ₹4,90,912.50

   (d) ₹2,85,000 and ₹4,27,500

(ii) how much joint cost is allocated between the chocolate powder and milk-chocolate liquor bases respectively using Physical measure (gallons)?

   (a) ₹2,22,656.25 and ₹4,89,843.75

   (b) ₹ 2,49,375 and ₹ 4,63,125

   (c) ₹2,21,587.50 and ₹4,90,912.50

   (d) ₹2,85,000 and ₹4,27,500

(iii) how much joint cost is allocated between the chocolate powder and milk-chocolate liquor bases respectively using Estimated net realisable value, (NRV)?

   (a) ₹2,22,656.25 and ₹4,89,843.75

   (b) ₹ 2,49,375 and ₹ 4,63,125

   (c) ₹2,21,587.50 and ₹4,90,912.50

   (d) ₹2,85,000 and ₹4,27,500

(iv) What is the constant gross-margin percentage NRV ?

   (a) 8%

   (b) 9%

   (c) 12%

   (d) 12.5%

(v) how much joint cost is allocated between the chocolate powder and milk-chocolate liquor bases respectively using Constant gross-margin percentage NRV?

   (a) ₹2,22,656.25 and ₹4,89,843.75

   (b) ₹ 2,49,375 and ₹ 4,63,125

   (c) ₹2,21,587.50 and ₹4,90,912.50

   (d) ₹2,85,000 and ₹4,27,500

Answers to the Case Scenarios

1.

i.	(b)	ii.	(d)	iii.	(a)	iv.	(a)	v.	(c)

(i) (b) Sales Value at Split-off Point Method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Sales value of products at split off	₹ 2,99,250*	₹ 5,55,750**	₹ 8,55,000
Weights	0.35	0.65	1.00
Joint cost allocated	₹ 2,49,375 (₹7,12,500 × 0.35)	₹ 4,63,125 (₹7,12,500 × 0.65)	₹ 7,12,500

*(3,000 lbs ÷ 200 lbs) × 20 gallon × ₹ 997.50 = ₹ 2,99,250

** (5,100 lbs ÷ 340 lbs) × 30 gallon × ₹1,235 = ₹ 5,55,750

(ii) (d) Physical Measure Method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Output	300 gallon*	450 gallon**	750 gallons

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Weight	300/750 = 0.40	450/750 = 0.60	1.00
Joint cost allocated	₹ 2,85,000 (₹ 7,12,500 x 0.40)	₹ 4,27,500 (₹ 7,12,500 x 0.60)	₹ 7,12,500

*(3,000 lbs ÷ 200 lbs) × 20 gallon = 300 gallon

** (5,100 lbs ÷ 340 lbs) × 30 gallon = 450 gallon

(iii) (a) Net Realisable Value (NRV) Method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Final sales value of production	₹ 5,70,000 (3,000 lbs × ₹190)	₹ 12,11,250 (5,100 lbs × ₹ 237.50)	₹17,81,250
Less: Separable costs	₹ 3,02,812.50	₹ 6,23,437.50	₹ 9,26,250
Net realisable value at split off point	₹ 2,67,187.50	₹ 5,87,812.50	₹ 8,55,000
Weight	0.3125 (2,67,187.50 ÷ 8,55,000)	0.6875 (5,87,812.5 ÷ 8,55,000)	1.00
Joint cost allocated	₹ 2,22,656.25 (₹ 7,12,500 x 0.3125)	₹ 4,89,843.75 (₹ 7,12,500 x 0.6875)	₹ 7,12,500

(iv) (a) Final sales value of total production = ₹17,81,250

Less: Joint and separable cost = ₹ 16,38,750 (₹ 7,12,500 + ₹ 9,26,250)

Gross Margin $= ₹ 1,42,500$

Gross margin (%) $= \dfrac{₹ 1,42,500}{₹ 17,81,250} \times 100 = 8\%$

(v) (c) Constant Gross Margin(%) NRV method

	Chocolate powder Liquor base	Milk chocolate liquor Base	Total
Final sales value of production	₹ 5,70,000	₹ 12,11,250	₹ 17,81,250
Less: Gross margin* 8%	₹ 45,600	₹ 96,900	₹ 1,42,500
Cost of goods available for sale	₹ 5,24,400	₹ 11,14,350	₹16,38,750
Less: Separable costs	₹ 3,02,812.50	₹ 6,23,437.50	₹ 9,26,250
Joint cost allocated	₹ 2,21,587.50	₹ 4,90,912.50	₹ 7,12,500

14. Product Y yields two by-products A and B. The joint cost of manufacture is ₹ 2,00,000. Sales of A and B are ₹ 80,000 and ₹ 50,000 respectively. Manufacturing expenses after separation of A and B are ₹ 10,000 and ₹ 8,000 respectively while their respective estimated selling expenses on sales is 20% for both products. The estimated profit on sales of A and B is 25% and 30% respectively. What is the cost of product Y after adjusting joint cost apportioned to by-products A and B?

(a) ₹ 1,50,000

(b) ₹ 1,49,000

(c) ₹ 1,82,000

(d) ₹ 1,20,000   (2 Marks)

14. (b) ₹ 1,49,000

Total Cost=Sales Revenue−Profit

For A:

Total Cost of A = 80,000−20,000=60,000

For B:

Total Cost of B = 50,000−15,000=35,000

For A:

Joint Cost Allocated to A = 60,000−(Manufacturing Expenses + Selling Expenses)

= 60,000−(10,000+16,000) = 34,000

For B:

Joint Cost Allocated to B = 35,000−(Manufacturing Expenses + Selling Expenses)

= 35,000 − (8,000 + 10,000) = 17,000

Cost of Product Y = Total Joint Cost−Joint Cost Allocated to A and B

= 2,00,000 − 51,000 = 1,49,000

Congratulations!
CA Final 2024 AFM Toppers

Palak	Chinmay	Lalit	Gopi	Kajal	Girish	Hardik
94	91	91	90	90	90	90

Vivek	Sanskar	Sanket	Anantvirya	Neeraj	Samay	Kunal	Himanshu
89	89	89	88	87	86	86	86

Aman	Archita	Yash	Khushi	Radhika	Tushar	Laher	Prateek
86	86	86	85	85	85	84	84

Rehan	Govind	Vijay	Vaibhav	Samiksha	Ashutosh	Shivam	Mayank
84	84	83	83	83	82	82	82

Harshita	Gautam	Mudit	Shailee	Mehak	Gargi	Sachin
82	82	82	81	81	81	81

Palak	Bharat	Akshay	Rutuparna	Yash	Prasad	Bhushan
81	80	80	80	80	80	80

& 400+ Exemptions in AFM...

CA, CFA (USA), CPA (USA)
PRAVEEN KHATOD

SERVICE COSTING

OPERATING COSTING

Service Costing

5.   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. 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

Solution:

5.   (b)   ₹ 900 per room day

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

6. ALC Ltd. is a insurance company. It launched a new term insurance policy Names as Protection Plus. The total cost for the policy during the year is ₹ 1,60,00,000. Total number of policies sold is 410 and total insured value of policies is ₹ 920 crore.

What is the cost per rupee of insured value?

(a)   ₹ 0.0017

(b)   ₹ 0.18

(c)   ₹ 575

(d)   ₹ 2.24

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Solution:

6.   (a)   ₹ 0.0017

Cost per rupee of insured value

=   Total Cost/ Total Insured Value

=   1.6 cr/920 cr = ₹ 0.0017

MTP Jan 2025 Series I

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

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

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

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

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

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

(d) Marketing and Sales support- ₹ 24,17,21,000, Operations- ₹ 22,48,32,500, I.T. Cost- ₹ 30,71,90,000 and Support functions- ₹ 19,92,56,500 **(2 Marks)**

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

Calculation of total cost for 'Max Jivan' Insurance policy

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

MTP Jan 2025 Series II

Case Scenario I

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

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   (5 x 2 Marks)

1. C   Profit if no minimum charges are there, on absolute tonne basis, but he will charge for diesel petrol when running empty

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

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.   A

	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.   B   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.   B

5.   B   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**

MTP Sep 2024 Series I

14. A truck carrying 10 tons of goods over 200 kilometres per day for 26 days in a month. The ton kms applicable is -
    (a) 52,000
    (b) 20,000
    (c) 5200
    (d) 260   **(2 Marks)**

Solution:

14. a   **52,000**

    Ton-kilometers = 10 tons x 200 kilometers x 26 days
                   = 52,000

MTP May 2024 Series II

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

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

    A. ₹ 0.6
    B. ₹ 0.8
    C. ₹ 21,000
    D. ₹ 131.25   **(2 Marks)**

Solution:

7. **B**

Total cost	= ₹ 5,25,000
Tonnes Km carried	= 6,55,000
Unit Cost	= ₹ 525000/655000 Km = ₹ 0.801

Study Material

Case Scenarios

1. 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:

(i)   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

(ii)   What would be the monthly cost of electricity for an EV car?

    (a)   ₹1,425

    (b)   ₹1,500

    (c)   ₹1,450

    (d)   ₹1,525

(iii)   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

(iv)   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

(v)   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 THE CASE SCENARIOS

1.

i.	(d)	ii.	(a)	iii.	(d)	iv.	(a)	v.	(c)

(i)   **(d)**   ₹12,00,000

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**

(ii)   **(a)**   ₹1,425

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**

(iii)   **(d)**   ₹16,000

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**

(iv) (a)   ₹ 36,627.78

(v) (c)   ₹ 43.708.33

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**

12. A truck having a capacity of 5 tonnes of goods normally carries 80% of the load on the outward journey and 40% of the load on inward journey. The distance is 300 km for one side. It takes 2 days to complete the round trip. The truck is on the road for 310 days in a year. Which one of the following is the total tonne-km in a year?

(a) 3,70,000

(b) 3,20,000

(c) 2,79,000

(d) 2,50,000 **(2 Marks)**

12. (c) 2,79,000

Tonne-Km for Outward Journey = 4 tonnes × 300 km = 1,200 tonne-km

Tonne-Km for Inward Journey = 2 tonnes × 300 km = 600 tonne-km

Total Tonne-Km per Round Trip = 1,200 + 600 = 1,800 tonne-km

Total Tonne-Km in a year = 1,800 × 155 = 2,79,000 tonne-km

Case Scenario 2

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

Fleet and Operations

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

Cost Data:

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

Additional Info:

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

You are required to answer the following requirements (MCQs 6 to 10)

6.   Calculate the cost per trip per bus.

(a)   ₹ 21,750

(b)   ₹ 29,250

(c)   ₹ 23,450

(d)   ₹ 28,250

7. Determine the total cost of operating one bus for a month.

    (a)   ₹ 5,20,000

    (b)   ₹ 4,45,000

    (c)   ₹ 6,10,000

    (d)   ₹ 5,85,000

8. What is the monthly revenue if each ticket is priced at ₹1,000 per trip?

    (a)   ₹ 90,00,000

    (b)   ₹ 1,00,00,000

    (c)   ₹ 80,00,000

    (d)   ₹ 75,00,000

9. Calculate the break-even number of passengers per trip if the ticket price is ₹635.

    (a)   44 passengers

    (b)   49 passengers

    (c)   47 passengers

    (d)   50 passengers

10. Calculate the cost per passenger-kilometer.

    (a)   ₹ 2.438

    (b)   ₹ 4.88

    (c)   ₹ 3.75

    (d)   ₹ 5.25   **(5 x 2 = 10 Marks)**

6.   (b)   ₹ 29,250

Fixed Costs per Trip per Bus

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

= ₹ 13,00,000 / (10 x 20) = ₹ 6,500

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

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

= ₹ 1,50,000 / (10 x 20) = ₹ 750

Variable Costs per Trip per Bus

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

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

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

Total Fixed Costs:

- Insurance: ₹ 2,00,000

- License Fees: ₹ 50,000

- Salaries to Driver and Conductor: ₹ 5,00,000

- Garage Rent: ₹ 1,00,000

- Depreciation: ₹ 3,00,000

- Administration Expenses: ₹ 1,50,000

- **Total Fixed Costs: ₹ 13,00,000**

Repairs & Maintenance calculation

- Let x be the fixed portion of the semi-variable costs.

- Let y be the variable cost per trip.

Formulate Equations from Given Data:

- April: $x + 18y = 1,40,000$

- May: $x + 22y = 1,60,000$

Solve for y:

- Subtract the April equation from the May equation:

- $(x+22y) - (x+18y) = 1,60,000 - 1,40,000$

- $y = 5,000$

- Using the April equation:

- $x + 18 \times (5,000) = 1,40,000$

- $x = 50,000$

Calculate Semi-Variable Costs for 20 Trips:

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

7. (d) ₹ 5,85,000

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

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

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

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

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

Total Cost per Bus per Month = ₹ 1,30,000 + ₹ 15,000 + ₹ 4,40,000 = ₹ 5,85,000

8. (c) ₹ 80,00,000

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

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

9. (c) 47 passengers

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

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

10. (a) ₹ 2.438

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

= 24,00,000 passenger-kms

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

= ₹ 29,250 x (10x20) / 24,00,000

= ₹ 58,50,000/24,00,000

= ₹ 2.438 per passenger-kilometer

13. PG Ferry services Pvt Ltd. provide ferry services between two towns. Distance one way is 18.52 nautical miles. Seating capacity of a ferry is 125 passengers. Actual passengers carried in each trip is 80% of seating capacity. Ferry run on all days of month (30 days). Ferry makes a round trips in a day. company is expecting a monthly revenue of ₹ 55,56,000. Calculate fare to be charged from a passenger for round trip.

   (a)   100

   (b)   926

   (c)   1852

   (d)   50.95   **(2 Marks)**

13.   (c)   1,852

Calculation of fare per passenger nautical mile:

$$\frac{55,56,000}{18.52 \times 100 \times 2 \times 30}$$

= 50 per passenger nautical mile

Fare for round trip = 50 x 18.52 x 2 = 1,852

STANDARD COSTING

Exam Jan 2025

11. AB limited has furnished the following data:

	Budget	Actual (for the month of March)
Production in units	40,000	48,000
Fixed overheads (₹)	78,000	84,000

Calculate fixed overhead volume variance.

(A) ₹ 15,600 F

(B) ₹ 15,600 A

(C) ₹ 6,000 A

(D) ₹ 14,000 A

11.	(A)

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14. During a certain period, 4,000 labour hours were utilized, and the standard hours for actual production were 5,500 hours. The Variable Overhead Efficiency Variance amounted to ₹ 15,000 (Favourable).

Calculate the Standard Variable Overhead Rate per hour.

(A) ₹ 15 per hour

(B) ₹ 20 per hour

(C) ₹ 10 per hour

(D) ₹ 25 per hour

14.	(C)

RTP Sep 2024

Standard Costing

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

    Raw Material Z – 2 units @ ₹ 2 per unit

    Skilled labour of – 2.5 hours@ ₹ 5 per hour

    Fixed Overheads – ₹ 7.5 per unit

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

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

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

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

    (i)   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

    (ii) 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

(iii)   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

(iv)   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

(v)   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

2. (i) (a) 10,000 units

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) x 80% = 10,000 units.

(ii) (b) 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.

(iii) (d) 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

(iv) **(c)**   Labour Efficiency Variance – 25,000 Adverse,

      Labour rate Variance   – 30,000 Favourable

      Efficiency Variance $= SR \times (SH-AH)$

                                $= 5 \times (25,000 - 30,000)$

                                $= 25,000$ Adverse

      Rate Variance $= AH \times (SR - AR)$

                                $= 30,000\ (5 - 4)\ [1,20,000/30,000]$

                                $= 30,000$ Favourable.

(v) **(c)**   Fixed Overhead Volume variance – 1,00,000 Adverse

      Overhead Volume variance   = Actual Output × SR per unit – Budgeted FOH

      Budgeted FOH   = Actual FOH (+/-) Expenditure variance

      $1,50,000 + 25,000$ $= 1,75,000$

      $AO \times SR$ $= 10,000 \times 7.5 = 75,000$

      Therefore volume variance $= 75,000 - 1,75,000$

                                  $= 1,00,000$ Adverse.

MTP Jan 2025

15. The Budgeted fixed overhead for the month of August was ₹ 75,00,000 with the units of production estimated at 15,000. However, the actual units produced is 15,600 with no Fixed overhead cost variance.

    CALCULATE the actual fixed overhead incurred.

    A.   ₹ 75,00,000

    B.   ₹ 72,11,538

    C.   ₹ 78,00,000

    D.   ₹ 79,00,000   **(2 Marks)**

15. C   Fixed Overhead Cost Variance = Absorbed Fixed Overheads - Actual Fixed Overheads

$$0 \quad = (\frac{₹\,75,00,000}{15,000} \times 15,600) - \text{Actual Fixed Overheads}$$

Actual Fixed Overheads   = ₹ 78,00,000

MTP Jan 2025

Case Scenario I

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)

Based on the given information, you are being required to answer the following questions (MCQs 1 to 5):

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)   **(5 x 2 Marks)**

1. **(c) ₹ 1,50,000 (A)**

   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. **(d) ₹ 1,00,000 (A)**

   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. **(c) 0**

   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. **(b) ₹ 42,500 (A)**

   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. **(b) ₹ 50,000 (A)**

   Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads - Actual Fixed Overheads

   = ₹ 20,00,000 - ₹ 20,50,000

   = ₹ 50,000 (Adverse)

MTP Sep 2024

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:

6. 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)

7. Compute Material Price Variance for supplier negotiation
    (a) ₹ 18,000 (A)
    (b) ₹ 43,200 (F)
    (c) ₹ 37,500 (A)
    (d) ₹ 37,500 (F)

8.   Compute Material Cost Variance

(a)   ₹ 32,500 (F)

(b)   ₹ 24,500 (A)

(c)   ₹ 79,270 (F)

(d)   ₹ 79,270 (A)

9.   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)

10.   Compute Labour Cost Variance.

(a)   ₹ 884 (A)

(b)   ₹ 1,556 (F)

(c)   ₹ 884 (F)

(d)   ₹ 1,556 (A)   **(5 x 2 = 10 Marks)**

6.   (a)   Material Mix Variance (Cotton + Polyester) = {(RSQ × SP) – (AQ × SP)}

$$= \{7,08,570 - 7,10,000\}$$

$$= 1,430 \text{ (A)}$$

Material Yield Variance (Cotton + Polyester) = {(SQ × SP) – (RSQ × SP)}

$$= \{7,51,770 - 7,08,570\}$$

$$= 43,200 \text{ (F)}$$

7.   (d)   Material Price Variance (Cotton + Polyester) = {(AQ × SP) – (AQ × AP)}

$$= \{7,10,000 - 6,72,500\}$$

$$= 37,500 \text{ (F)}$$

8.   (c)   Material Cost Variance (Cotton + Polyester) = {(SQ × SP) – (AQ × AP)}

$$= \{7,51,770 - 6,72,500\}$$

$$= 79,270 \text{ (F)}$$

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 - $\left(\dfrac{8,000m}{0.9 \times 14,000m} \times 14,800m\right)$ = 9,396.8 or 9,397 m

Polyester- $\left(\dfrac{6,000m}{0.9 \times 14,000m} \times 14,800m\right)$ = 7,047.6 or 7048 m

WN- 2: Revised Standard Quantity (RSQ):

Cotton - $\left(\dfrac{8,000m}{14,000m} \times 15,500m\right)$ = 8,857.1 or 8857 m

Polyester - $\left(\dfrac{6,000m}{14,000m} \times 15,500m\right)$ = 6,642.8 or 6643 m

9. (b) 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)

10. (a) 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- $\left(\dfrac{0.95 \times 1,000hr.}{0.90 \times 14,000m.} \times 14,800m.\right)$ =1,115.87 or 1,116 hrs.

Unskilled labour- $\left(\dfrac{0.95 \times 800hr.}{0.90 \times 14,000m.} \times 14,800m.\right)$ = 892.69 or 893 hrs.

WN- 4: Revised Standard Hours (RSH):

Skilled labour- $\left(\dfrac{1,000hr.}{1,800hr.} \times 2,060hr.\right)$ = 1,144.44 or 1,144 hrs.

Unskilled labour- $\left(\dfrac{800hr.}{1,800hr.} \times 2,060hr.\right)$ = 915.56 or 916 hrs.

14. A factory has a capacity utilization ratio of 85% and its activity ratio is 95%. Which one of the following is the efficiency ratio?

    (a)   120%

    (b)   110%

    (c)   112%

    (d)   90%   **(2 Marks)**

14. (c) Efficiency Ratio = Activity Ratio/Capacity Utilization Ratio

$$= 0.95/0.85 = 1.117 \text{ or } 112\%$$

MTP Sep 2024

12. A furniture company uses premium wood for sofa. Standard quantity of premium wood per sofa is 5 sq. ft. Standard price per sq. ft. of premium wood is ₹ 10. Actual production of sofa is 1,000. Premium wood actually used is 5,300 sq. ft. Actual purchase price of premium wood per sq. ft. is ₹ 10. What is material cost variance?

    (a)   ₹ 3,000 (A)

    (b)   ₹ 4,300 (A)

    (c)   ₹ 7,300 (A)

    (d)   ₹ 5,300 (F)   **(2 Marks)**

12. a   **₹ 3000(A)**

Standard quantity = Standard quantity per sofa × Actual production

$$= 5 \text{ sq. ft} \times 1000 = 5,000 \text{ sq. ft.}$$

Standard material cost = Standard quantity × Standard price per sq. ft.

$$= 5,000 \text{ sq. ft.} \times ₹ 10/\text{sq. ft.} = ₹ 50,000$$

Actual material cost = Actual quantity used × Actual purchase price per sq. ft.

$$= 5,300 \text{ sq. ft.} \times ₹ 10/\text{sq. ft.} = ₹ 53,000$$

Material cost variance = Standard material cost − Actual Material cost

$$= ₹ 50,000 - ₹ 53,000 = -₹ 3,000$$

15. Standard hours required for doing a work is 100 hours and budgeted hours is 120 hrs while the same work is actually completed by workers in 110 hrs. You are required to calculate the activity ratio:

(a) 109.09%

(b) 83.33%

(c) 90.90%

(d) 110% **(2 Marks)**

15. b 83.33%

$$\text{Activity Ratio} = \frac{\text{Standard Hours}}{\text{Budgeted Hours}} \times 100$$

= 83.33%

MTP May 2024 | Study Material

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

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

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

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

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

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

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

i. What is the amount of variable overhead cost variance for the month of March 2024:

A. ₹ 10,200 (A)

B. ₹ 10,400 (A)

C. ₹ 10,800 (A)

D. ₹ 10,880 (A)

ii. What is the amount of fixed overhead volume variance for the month of March 2024:

A. ₹ 9,000 (F)

B. ₹ 9,000 (A)

C. ₹ 21,800 (A)

D. ₹ 11,000 (A)

iii. What is the amount of fixed overhead expenditure variance for the month of March 2024:

A. ₹ 21,520 (A)

B. ₹ 21,500 (A)

C. ₹ 21,400 (A)

D. ₹ 21,480 (A)

iv. What is the amount of fixed overhead calendar variance for the month of March 2024:

A. ₹ 5,400 (A)

B. ₹ 5,450 (A)

C. ₹ 5,480 (A)

D. ₹ 5.420 (A)

v. What is the amount of fixed overhead cost variance for the month of March 2024:

A. ₹ 43,320 (A)

B. ₹ 43,300 (A)

C. ₹ 43,200 (A)

D. ₹ 43,380 (A)   (5 x 2 = 10 Marks)

Answers to the Case Scenarios

1.

i.	(d)	ii.	(c)	iii.	(a)	iv.	(b)	v.	(a)

i. d Variable Overhead Cost Variance = Standard Variable Overheads for Production – Actual Variable Overheads

= ₹ 44,800 – ₹ 55,680

= ₹ 10,880 (A)

ii. c Fixed Overhead Volume Variance = Absorbed Fixed Overheads – Budgeted Fixed Overheads

= ₹ 87,200 – ₹ 1,09,000

=₹ 21,800 (A)

iii. a Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads – Actual Fixed Overheads

= ₹ 10.9 × 10,000 units – ₹ 1,30,520

= ₹ 21,520 (A)

iv. b Calendar Variance = Possible Fixed Overheads – Budgeted Fixed Overheads

= ₹ 1,03,550 – ₹ 1,09,000

= ₹ 5,450 (A)

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

= ₹ 87,200 – ₹ 1,30,520

= ₹ 43,320 (A)

WORKING NOTE

Fixed Overheads = $\dfrac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ = 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 = $\dfrac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ ₹ 1,08,000/120,000	₹ 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*	₹5.60

$= \dfrac{\text{Budgeted Variable Overheads}}{\text{Budgeted Output}}$	
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 $= \dfrac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Days}} \times \text{Actual Days}$ = 1,09,000/20 days × 19 days	₹ 1,03,550
Actual Fixed Overheads (₹ 1,19,000 + 60% of ₹ 19,200)	₹ 1,30,520
Actual Variable Overheads (₹ 48,000 + 40% of ₹ 19,200)	₹ 55,680

MTP May 2024

3. The wages budget for the last period was based on a standard repair time of 30 minutes per unit and a standard wage rate of ₹ 50 per hour. The actual data for the last period are as follows:

Number of units = 30,000

Labour rate variance = 7,500 (A)

Labour efficiency variance = Nil

From the information find out the actual rate of wages per unit

A.   ₹ 50

B.   ₹ 25.50

C.   ₹ 50.50

D.   ₹ 25.25   **(2 Marks)**

3.   **D**   Labour rate variance = Standard time for actual production (SR- AR)

7,500 (A) = (30,000 × 30 minutes/60 minutes) × (50-AR)

AR = (7,50,000 + 7,500)/15,000 = ₹50.50 per hour

Actual wages per unit = 50.50/2 = ₹25.25

6. Based on the data below, what is the amount of the overhead under-/over-absorbed?

Budgeted overhead – ₹ 5,25,000

Budgeted machine hours- 17,500

Actual machine hours- 17,040

Actual overheads- ₹ 5,20,000

A.   5,000 under-absorbed

B.   8,800 under-absorbed

C.   8,800 over-absorbed

D.   5,000 over-absorbed   **(2 Marks)**

6.   **B**   Actual Overhead – (Actual machine hours × machine hour rate)

5,20,000 – (17040 × 30) = 8,800 under absorbed

11. The following figures are extracted from the books of a company:

Budgeted overheads ₹ 20,000 (Fixed ₹ 12,000, Variable ₹ 8,000)

Budgeted output 2,500 units

Actual Overheads ₹ 21,800 (Fixed ₹ 11,800, Variable ₹ 10,000)

Actual output 3000

Variable Overheads and fixed overheads cost variance will be:

(a) 400 (A) and 2600 (F)

(b) 400 (A) and 200 (F)

(c) 2000 (A) and 200 (F)

(d) 2000 (F) and 200 (A)

11. (a) **400 (A) and 2,600 (F)**

Variable overhead cost variance: Standard Variable overheads - Actual variable overheads

8,000/2,500 x 3,000 – 10,000 = 400A

Fixed overhead cost variance: Standard fixed overheads - Actual fixed overheads

12,000/2,500 x 3,000 – 11,800 = 2,600F

CHAMPION

Inter
COST
88

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PRAVEEN KHATOD

MARGINAL COSTING

RTP Jan 2025

PART I - Case Scenario based MCQs

Marginal Costing

1. 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.

Answer the following:

(i) 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

(ii) 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

(iii) 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

(iv) 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

(v) 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

✅ SUGGESTED ANSWERS/HINTS

Note: Figures are rounded off to the nearest figures to remove approximation error, wherever required.

1. **(i)** **(b)** 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

    (ii) **(d)** 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**

    (iii) **(b)** 1000 units are to be distributed in the ratio of 2:3:5

    Bag = 200 units, bottle = 300 units, geometry = 500 units

    (iv) **(c)** 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

(v) **(d)** 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**

RTP Jan 2025

Marginal Costing

7. 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.

   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%

7.   **(b)**   Variable cost per unit $= \dfrac{\text{Change in Total cost}}{\text{Change in units}}$

$$= \left(\frac{(₹\,11 \times 20{,}000 \text{ units}) - (₹\,11.25 \times 16{,}000 \text{ units})}{20{,}000 \text{ units} - 16{,}000 \text{ units}} \right)$$

$$= \left(\frac{₹\,2{,}20{,}000 - ₹\,1{,}80{,}000}{4{,}000 \text{ units}} \right) = ₹\,10$$

Fixed cost   = Total Cost − Variable cost (at 20,000 units level)

= (₹ 11 × 20,000 units) − (₹ 10 × 20,000 units)

= ₹ 20,000

(i)   Break-even Point (in units) $= \left(\dfrac{\text{Fixed Costs}}{\text{Contribution per unit*}} \right)$

$$= \left(\frac{₹\,20{,}000}{₹\,3.333} \right)$$

= 6,000 units

* Contribution is the excess of sales revenue over the variable costs.

(ii)   Cash Break-even Point (in units) $= \left(\dfrac{\text{Cash Fixed Costs**}}{\text{Contribution per unit}} \right)$

$$= \left(\frac{₹\,20{,}000 - ₹\,5{,}000}{₹\,3.333} \right)$$

= 4,500 units

** depreciation and other non-cash fixed costs are excluded from the fixed costs to compute cash break-even point.

(ii)   P/V Ratio $= \dfrac{\text{Contribution per unit}}{\text{Sale price per unit}}$

$$= \left(\frac{₹\,3.333}{₹\,10 + ₹\,3.333} \right)$$

= 25%

Exam Sep 2024

11. PS Limited is faceing downfall in its demand. Marketing team has suggested to reduce the selling price by 5% to compete in the market. Variable cost is 76% of the current selling price.

    You are required to find out the PN Ratio after reducing the price by 5%

    (A) 20%

    (B) 24%

    (C) 25.26%

    (D) 19%

11.	(A)

MTP Jan 2025

13. Mefttal Ltd. is currently operating at 60% of its total capacity which is 1.5 times than the previous year. The total capacity of the company is 2,00,000 units.

    Other information relating to the production is provided below:

    (i) The total cost of production for the current year is ₹ 59,28,000, and for the previous year, it was ₹ 44,72,000.

    (iii) No changes are anticipated in the cost structure for the upcoming years.

    Selling price is ₹ 52 per unit and is expected to remain the same in the coming years.

    -

    You are required to CALCULATE Break-Even Point (in units).

    (a) 1,20,000 units

    (b) 40,000 units

    (c) 80,000 units

    (d) 1,00,000 units   **(2 Marks)**

13. (d) 1,00,000 units

Current Year production = 60% of 2,00,000 units

= 1,20,000 units

Previous Year production = $\left(\dfrac{1,20,000 \text{ units}}{1.5 \text{ times}}\right)$

= 80,000 units

Particulars	Previous Year	Current Year	Difference
Sales (Units)	80,000	1,20,000	40,000
Total Cost (₹)	44,72,000	59,28,000	14,56,000

Variable Cost per unit = $\dfrac{\text{Change in Total Cost}}{\text{Change in sales volume}}$

= $\left(\dfrac{₹\,14,56,000}{40,000 \text{ units}}\right)$

= ₹ 36.40 per unit

Total Fixed Cost (₹) = ₹ 59,28,000 - (1,20,000 units × ₹ 36.40)

= ₹ 15,60,000

Break- even point (in units) = $\dfrac{\text{Fixed Cost}}{\text{Contribution per unit}}$

= $\left(\dfrac{₹\,15,60,000}{₹\,52 - ₹\,36.40}\right)$

= 1,00,000 units

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13. Due to sudden rise in demand of the product, the sales of Arrow Ltd. for current year enhanced to 3 times the average of last 4 years. The Break even point and the variable cost of the company for the current year is ₹ 1,17,00,000 and 93,60,000 respectively.

The sales data relating to past years is given below:

Year	Sales (₹)
Year 1 (latest)	62,00,000
Year 2	50,00,000
Year 3	52,00,000
Year 4	44,00,000
Year 5	66,00,000

CALCULATE the fixed cost to the company for the current year.

A. ₹ 64,35,000

B. ₹ 48,12,453

C. ₹ 65,34,340

D. ₹ 46,80,000   **(2 Marks)**

13. D   Sales for current year $= 3 \times \left(\dfrac{62,00,000 + 50,00,000 + 52,00,000 + 44,00,000}{4} \right)$

$= ₹ 1,56,00,000$

P/V ratio $= \dfrac{\text{Sales - Variable Cost}}{\text{Sales}}$

$= \dfrac{₹ 1,56,00,000 - 93,60,000}{₹ 1,56,00,000}$

$= 40\%$

Now, Break even point $= \dfrac{\text{Fixed Cost}}{\text{P/V ratio}}$

Therefore, **Fixed Cost**   = Break even point x P/V ratio

$= ₹ 1,17,00,000 \times 40\%$

$= ₹ 46,80,000$

Case Scenario II

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 it becomes 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.

Answer the following questions (MCQs 6 to 10):

6. 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

7. 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

8. 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

9. 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

10. 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   **(5 x 2 Marks)**

6.   (b)   ₹ 75,47,750

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

7.   (a) $ 4.23

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

8.   (c)   ₹ 39,94,250

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

9. **(d)** ₹ 50,94,250

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**

10. **(a)** ₹ 19,94,250

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**

MTP Sep 2024

11. A company's fixed costs are ₹ 5,00,000, the selling price per unit is ₹ 200, and the variable cost per unit is ₹100. How many units must the company sell to earn the targeted profit of ₹ 2,00,000?

    (a) 2,000 units

    (b) 5,000 units

    (c) 10,000 units

    4

    (d) 7,000 units   (2 Marks)

11. **(d)** Break-even point $= \dfrac{Fixed\ Costs + Targeted Profit}{(Selling\ Price\ per\ Unit\ -\ Variable\ Cost\ per\ Unit)}$

    = (5,00,000 + 2,00,000)/100 = 7,000 units

MTP Sep 2024

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	10,000 units
(Note: Last month there was an additional special order of 2000 units which resulted in higher production)	
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:

6. Calculate the contribution margin per unit.

    (a) ₹ 550

    (b) ₹ 600

    (c) ₹ 650

    (d) ₹ 700

7. Determine the break-even point in sales revenue.

    (a) ₹ 31,28,593

    (b) ₹ 25,85,153

    (c) ₹ 27,27,025

    (d) ₹ 27,05,983

8. 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

9. 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

10. 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%   **(5 x 2 = 10 Marks)**

6.   a   ₹ 550

   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

   1. The cost of Copper is ₹ 80 more than the cost of Plastic: Cost of Copper = x + 80

   2. The cost of Other Materials is twice that of Plastic: Cost of Other Materials = 2x

   3. 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

1. The Labour Hour Rate is ₹ 100 per hour.

2. The total labour hours used in the last month were 36,000 hours.

3. 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.

7. **c**   **₹ 27,27,025**

   - 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

8. **b**   **2,727 units**

   - 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)

9. **b**   **2,198 units**

   - 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

10. **c**   **45.05%**

    - 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%

MTP May 2024 | Study Material

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

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

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

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

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

i.   What will be the revised sales for the coming financial year?

    A.   ₹ 322.22 Crore

    B.   ₹ 311.11 Crore

    C.   ₹ 300.00 Crore

    D.   ₹ 324.24 Crore

ii.   What will be the revised break-even point for the coming financial year?

    A.   ₹ 222.22 Crore

    B.   ₹ 252.22 Crore

    C.   ₹ 244.44 Crore

    D.   ₹ 255.56 Crore

iii.   What will be the revised margin of safety for the coming financial year?

    A.   ₹ 100 Crore

    B.   ₹ 58.89 Crore

    C.   ₹ 55.56 Crore

    D.   ₹ 66.66 Crore

iv.   The profit of the last year and for the coming year are:

    A.   ₹ 50 Crore & ₹95 Crore respectively

    B.   ₹ 20 Crore & ₹ 65 Crore respectively

    C.   ₹ 20 Crore & ₹ 30 Crore respectively

    D.   ₹ 45 Crore & ₹ 66.66 Crore respectively

v.   The total cost of the last year and for the coming year are:

    A.   ₹ 230 Crore & ₹292.22

    B.   ₹ 230 Crore & ₹275 Crore

    C.   ₹ 220 Crore & ₹282.22 Crore

    D.   ₹ 220 Crore & ₹292.22 Crore   **(5 x 2 = 10 Marks)**

Answers To The Case Scenarios

1.

i.	(a)	ii.	(d)	iii.	(d)	iv.	(c)	v.	(a)

i.   a   Revised Sale $= \dfrac{\text{Revised Fixed Cost} + \text{Expected Profit}}{\text{P / V Ratio}}$

$= \{₹115 + (20+10)\} \div 45\% = ₹ 322.22 \text{ crores}$

ii.   d   Revised Break – even Point $= \dfrac{\text{Fixed Cost}}{\text{P / V Ratio}}$

$= ₹115 \text{ Crore} \div 45\% = ₹255.56 \text{ Crore (Refer working notes)}$

iii.   d   Revised Margin of Safety = Revised Sales – Revised Break–even Sales

$=$ ₹ 322.22Crores – ₹ 255.56Crores = ₹ 66.66 Crores.

iv.   c   ₹ 20 Crore & ₹30 Crore respectively (Refer working note)

v.   a   Total cost in last year = ₹230 Crore

Total cost in coming year = Variable Cost + Fixed Cost

Revised sales × 55% + 115 Crore

$= ₹ 322.22 \text{ Crore} \times 55\% + ₹ 115 \text{ Crore} = ₹ 292.22 \text{ Crore}$

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
$$= \frac{₹41.40}{₹92.00} \times 100$$

$$= 45\%$$

Integrated

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

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

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

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

Expenses started to incur as soon as the office opened:

- Salaries of staff ₹ 2,50,000 per month.

- Electricity, water, & maintenance of office at ₹ 50,000 per month.

- Security staff at ₹ 15,000 per month.

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

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

(1) Office and administration

(2) Sales and marketing

(3) Account and Finance

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

- Office and administration = ₹ 95,000 per year

- Sales and marketing = ₹ 1,12,000 per year

- Accounts and Finance = ₹ 88,000 per year

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

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

Mr. Linde, being the only person representing his company and lone German in the Indian office feels difficult to manage everything as he finds Indian corporate environment very challenging. He asked his company to deploy another German manager to India. This will cost the company additional two million Indian national rupee per year to relocate this additional manager in India. The German management is divided on this decision. The ones who disagree say "Mr. Linde is competent enough to run a small extension of our company in India. We will allocate more resources to Indian subsidiary when actual operations will start, till then everything can be managed by Mr. Linde alone. Right

Indian Company is itself a cost centre and we are already paying him 3.5 million INR annually, therefore we are not ready to invest until it starts generating revenue".

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

Expenses in this new building are expected to be:-

- Salaries of staff ₹ 3,00,000 per month

- Electricity, water, & maintenance of office at ₹ 80,000 per month.

- Security at ₹ 30,000 per month.

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

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

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

   (a)   20,00,000

   (b)   49,20,000

   (c)   98,40,000

   (d)   40,00,000

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

   (a)   4,30,000

   (b)   70,30,000

   (c)   24,46,000

   (d)   90,46,000

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

   (a)   3,21,50,000

   (b)   1,51,50,000

   (c)   81,50,000

   (d)   40,75,000

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

   (a)   3,75,00,000

   (b)   1,28,12,500

   (c)   1,25,00,000

   (d)   4,24,20,000

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

   (a)   33,40,000

   (b)   30,00,000

   (c)   15,90,000

   (d)   15,00,000

✅ SUGGESTED ANSWERS

1. **i.** **(d)** Only avoidable cost is a new managers salary for 2 years

= ₹ 20,00,000 x 2 = ₹ 40,00,000

ii. **(d)** Shut down cost is the cost spent when the company was shut down for 12 years in India

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

Sunk cost are all the costs that was spent in 2012

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

= ₹ 70,30,000

Total = ₹ 90,46,000

iii. **(a)** **Calculation**

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

iv. **(b)** Cost of new office = ₹ 3,75,00,000

Money received from sale of Noida office

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

= ₹ 2,46,87,500

Out of pocket expenses for relocation of head office

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

v. **(a)** Unexpired cost = advance salary paid till march of next year

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

7. PR Ltd. sells two types of pen, ball pen and gel pen. Currently, the company is expecting to sell 6,000 units of ball pen along with 3,600 units of gel pen in the coming month. Other information as forecasted is provided below:

Particulars	Ball pen	Gel pen
Selling price (per unit)	₹ 150	₹ 100
Variable cost (per unit)	₹ 90	₹ 60
Contribution (per unit)	₹ 60	₹ 40
Fixed Costs		₹ 3,36,000

You are required to CALCULATE the Composite Break-even Batch and individual break-even of the pens (in units).

(a) Composite Break-even Batch- 6,400 batches, Break-even units of Ball pen- 4,000 units, Break-even units of Gel pen- 2,400 units.

(b) Composite Break-even Batch- 800 batches, Break-even units of Ball pen- 500 units, Break-even units of Gel pen- 300 units.

(c) Composite Break-even Batch- 800 batches, Break-even units of Ball pen- 4,000 units, Break-even units of Gel pen- 2,400 units.

(d) Composite Break-even Batch- 6,400 batches, Break-even units of Ball pen- 500 units, Break-even units of Gel pen- 300 units.

7. (c) PR Ltd. is expecting to sell 6,000 units of ball pen along with 3,600 units of gel pen, resulting in a sales mix of 5:3 per batch.

Thus, composite contribution per batch = (₹ 60 x 5 ball pens) + (₹ 40 x 3 gel pens)

= ₹ 420

Composite Break-even Batch = $\left(\dfrac{\text{Commom fixed costs}}{\text{Composite contribution per batch}}\right)$

$= \left(\dfrac{₹\,3,36,000}{₹\,420}\right)$

= 800 batches

Break-even units of Ball pen = 800 x 5= 4,000 units

Break-even units of Gel pen = 800 x 3= 2,400 units

11. A manufacturing firm is presently producing and selling 10,000 units of a product at ₹ 500 per unit in the domestic market. The fixed cost per unit at the current level of operation is ₹ 150 and variable cost is ₹ 300 per unit. The firm has received an export order for supply of 5,000 units of the product at ₹ 400 per unit. After meeting the domestic demand, if the firm accepts the export offer, the profit of the firm is expected to:

(a) decrease by ₹ 5,00,000.

(b) increase by ₹ 2,00,000.

(c) decrease by ₹ 3,00,000.

(d) increase by ₹ 5,00,000. **(2 Marks)**

11. **(d)** **increase by ₹ 5,00,000.**

Total Revenue (Domestic) = 10,000 × 500 = 50,00,000

Total Cost (Domestic) = Fixed Cost + Variable Cost

= (10,000 × 150) + (10,000 × 300) = 15,00,000+30,00,000 = 45,00,000

Profit (Domestic) =Total Revenue−Total Cost = 50,00,000−45,00,000 = 5,00,000

Contribution per Unit (Export) = Export Price−Variable Cost = 400−300 = 100

Total Contribution from Export = 100 × 5,000 = 5,00,000

Case Scenario 1

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

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

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

Manoj contacted the Delhi head office and received a copy of 1st quarter records. He also got some information through emails shared between head office and branch office. He somehow

got a lot of information but this information doesn't make any sense as it is in parts and pieces. He called out for help of Finance and cost head, Miss Bharti, who is also a Chartered accountant.

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

* Rontomax garnered revenue of ₹ 80,00,000 in 1ˢᵗ quarter of 2023. Its tax provision expense was ₹ 4,50,000 calculated on earning before tax in the same period.

* Cost of Goods Sold (COGS) and Operating expenses in 1ˢᵗ quarter were Rs, 38,00,000 and ₹ 12,50,000 respectively.

* Quarterly interest expense was ₹ 1,50,000.

* Non-operating expense other than interest was ₹ 13,00,000 in the 1ˢᵗ quarter.

* Selling price was reduced by 8% & no. of units sold increased by 25% from 1ˢᵗ quarter to 2ⁿᵈ quarter.

* Variable cost per unit for maintaining the day-to-day business operations is 30% of variable cost per unit of producing the goods.

* EBIT per unit for 2ⁿᵈ quarter is ₹ 38.857 which has gone down by ₹ 8.285 from 1ˢᵗ quarter.

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

Following are those questions that they are seeking for solutions. Consider yourself as their assistant trainee and help to find these answers (MCQs 5 to 10).

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

     (a)   ₹ 76,50,000

     (b)   ₹ 86,00,000

     (c)   ₹ 92,00,000

     (d)   ₹ 96,50,000

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

     (a)   ₹ 49,40,000 & ₹ 1,10,000

     (b)   ₹ 3,26,000 & ₹ 17,90,000

     (c)   ₹ 17,90,000 & ₹ 3,26,000

     (d)   ₹ 4,94,000 & ₹ 11,10,000

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

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

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

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

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

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

    (a) ₹ 4,65,000

    (b) ₹ 4,75,000

    (c) ₹ 4,85,000

    (d) ₹ 4,45,000

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

    (a) ₹ 38,50,000

    (b) ₹ 36,50,000

    (c) ₹ 41,50,000

    (d) ₹ 29,50,000   **(5 x 2 = 10 Marks)**

1. (c) ₹ 92,00,000

   Quarter 1:

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

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

EBIT per unit of 1st quarter	= 38.857 + 8.285 = ₹ 47.142
Then, 16,50,000/X	= 47.142
X	= 35,000 units
Number of units sold in 2nd Qtr.	= 35,000 + 35,000x0.25 = 43,750 units
Selling price in Qtr 1	= 80,00,000/35,000 = ₹ 228.571
Selling price in Qtr 2	= ₹ 210.285
Sales in Qtr 2	= 210.285 x 43,750 = ₹ 92,00,000

2. (a) ₹ 49,40,000 & ₹ 1,10,000

   COGS is 100% variable

VC per unit of operating expenses	= 30% of COGS per unit
COGS per unit	= 38,00,000/35,000 = ₹ 108.571
VC per unit of operating expenses	= 30% x 108.571 = ₹ 32.571
VC in operating expenses	= 32.571 x 35,000 = 11,40,000
Fixed cost in operating expenses	= 12,50,000 – 11,40,000 = ₹ 1,10,000
Total Variable Cost	= 11,40,000 + 38,00,000 = ₹ 49,40,000
Total fixed cost	= ₹ 1,10,000

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

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

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

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

= ₹ 24,50,000

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

NOE increased by 11,50,000

4.   (a)   **₹ 4,65,000**

EBIT of 1ST Qtr	= ₹ 16,50,000
EBT of 1ST Qtr	= EBIT – Int = 16,50,000 – 1,50,000 = ₹ 15,00,000
Tax Provision for 1st Qtr	= ₹ 4,50,000
Tax rate	= 4,50,000/15,00,000 = 30%
EBT for 2nd Qtr	= 17,00,000 – 1,50,000 = ₹ 15,50,000
Tax provision for 2nd Qtr	= 15,50,000 x 30% = ₹ 4,65,000

5.   (c)   **₹ 41,50,000**

Profit in 2nd Qtr as per Marginal Costing

= Sales – VC – FC

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

CONGRATULATIONS

CA Final Feb 2022 Bumper Results

All India Rankers | **SFM & SCMPE Toppers**

Pankaj AIR 10	Prakhar AIR 22	Yatharth AIR 32	Ayush 92 Marks	Harsh 92 Marks

Tanya 88 Marks	Arpit 86 Marks	Abhishek 85 Marks	Rishita 85 Marks	Yash 84 Marks	Shreyas 84 Marks	Chayan 84 Marks	Ritik 83 Marks	Itikaa 83 Marks
Sakshi 82 Marks	Madhavi 81 Marks	Raghav 81 Marks	Aditya 81 Marks	Sheetal 81 Marks	Lavish 79 Marks	Keshav 79 Marks	Bhawana 79 Marks	Pooja 78 Marks
Soma 77 Marks	Shubham 77 Marks	Anshita 77 Marks	Prashant 76 Marks	Piyush 76 Marks	Anukul 74 Marks	Kartik 74 Marks	Punit 73 Marks	Suprit 72 Marks
Anjali 72 Marks	Devashish 72 Marks	Urvil 72 Marks	Priyesh 71 Marks	Vishal 71 Marks	Riya 71 Marks	Divakar 71 Marks		
Anshul 71 Marks	Chinmay 71 Marks	Akshita 70 Marks	Soumya 70 Marks					
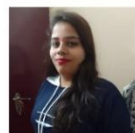
& 450+ Students with Exemptions in SFM & SCMPE

Alpha Academy
Leaders in CA Final SFM & SCMPE (COST)
Proud Faculty
CA, CFA(USA), CPA(USA)
PRAVEEN KHATOD
Best Faculty in India for CA Final SFM & SCMPE (COST)

BUDGET & BUDGETARY CONTROL

Exam Jan 2025

Case Scenario - II

XYZ Limited produces the product P. The cost accountant of the company has to prepare its budget for a particular year.

The following information are made available for this purpose:

The expected sales of the product P is 1,00,000 units during the year at a selling price of ₹ 50 per unit.

Each unit of product P requires 3 kgs of raw material Q and 4 kgs of raw material R.

The expected stock levels are as follows:

	Beginning of year	End of year
Finished product P in units	12,000	15,000
Raw material Q in kgs	26,000	20,000
Raw material R in kgs	36,000	42,000

Raw material Q costs ₹ 2 per kg and R costs ₹ 3 per kg.

It requires 10 minutes of direct labour time to produce one unit of product P. Labour cost is ₹ 50 per hour.

Variable manufacturing overheads are ₹ 10 per unit.

Fixed manufacturing cost is ₹ 3,00,000 per year.

Fixed Administration and selling expenses are ₹ 25,000 per year.

On the basis of above Case Scenario, you are required to answer the following MCQs 6 to 10:

6. The total number of units to be produced of product P is:

   (A) 1,03,000 units

   (B) 97,000 units

   (C) 92,000 units

   (D) 1,27,000 units

7. The total quantity of raw material R to be purchased during the year -

   (A) 4,06,000 kgs

   (B) 4,18,000 kgs

   (C) 3,82,000 kgs

   (D) 3,75,000 kgs

8 The total cost of purchase of Raw Material Q during the year is -

(A) ₹6,00,000

(B) ₹6,06,000

(C) ₹5,88,000

(D) ₹6,12,000

9. The budgeted variable cost of production of one unit of product P is -

(A) ₹46.33

(B) ₹36.38

(C) ₹25.33

(D) ₹36.33

10. What is the budgeted net income for the year?

(A) ₹10,41,667

(B) ₹13,66,650

(C) ₹10,67,000

(D) ₹10,37,000

6.	(A)
7.	(B)
8.	(B)
9.	(D)
10.	(A)

RTP Sep 2024

Budget and Budgetary Control

7. A business manufactures a single product and is preparing its production budget for the year ahead. It is estimated that 2,00,000 units of the product can be sold in the year and the opening inventory is currently 25,000 units. The inventory level is to be reduced by 40% by the end of the year. What is production budget in units?

   (a) 1,95,000 units

   (b) 1,90,000 units

   (c) 1,84,000 units

   (d) 1,75,000 units

7. **(b)**   1,90,000 units

	Units
Sales budget	2,00,000
Add: Closing Inventory (25,000 x 0.6)	15,000
Less: Opening Inventory	(25,000)
Production Budget	1,90,000

MTP May 2024

4. The following extract is taken from the overhead budget of X:

Budgeted activity	50%	75%
Budgeted overhead (₹)	30,00,000	40,00,000

   What would be the budgeted overhead for 60% level of activity:

   A. ₹ 32,00,0000

   B. ₹ 34,00,000

   C. ₹ 30,00,000

   D. ₹ 36,00,000   **(2 Marks)**

4. B Variable overhead for each % of level of activity

$$=\frac{40,00,000-30,00,000}{75-50} = 40,000$$

Fixed cost = 30,00,000 – (40,000 × 50) = 10,00,000

Total overheads for 60% level of activity

= 10,00,000 + (40,000 × 60) = 34,00,000

5. Which of the following statements relating to Zero Based Budgeting (ZBB) is false:

A. It is a method of budgeting whereby all activities are re-evaluated each time a budget is formulated.

B. ZBB attempts to eliminate unnecessary expenditure being retained in budgets.

C. It is probably the least time consuming and least costly approach to budgeting.

D. It requires that budgets are built up from scratch. **(2 Marks)**

5. C

Study Material

Case Scenarios

1. *M Ltd. is a public sector undertaking (PSU), produces a product A. The company is in process of preparing its revenue budget for the year 2024. The company has the following information which can be useful in preparing the budget:*

(i) *It has anticipated 12% growth in sales volume from the year 2023 of 4,20,000 tonnes.*

(ii) *The sales price of ₹23,000 per tonne will be increased by 10% provided Wholesale Price Index (WPI) increases by 5%.*

(iii) *To produce one tonne of product A, 2.3 tonnes of raw material are required. The raw material cost is ₹4,500 per tonne. The price of raw material will also increase by 10% if WPI increase by 5%.*

(iv) *The projected increase in WPI for 2022 is 4%*

(v)   *A total of 6,000 employees works for the company. The company works 26 days in a month.*

(vi)   *85% of employees of the company are permanent and getting salary as per 5- year wage agreement. The earnings per manshift (means an employee cost for a shift of 8 hours) is ₹ 3,000 (excluding terminal benefits). The new wage agreement will be implemented from 1st July 2024 and it is expected that a 15% increase in pay will be given.*

(vii)   *The casual employees are getting a daily wage of ₹850. The wages in linked to Consumer Price Index (CPI). The present CPI is 165.17 points and it is expected to be 173.59 points in year 2024.*

(viii)   *Power cost for the year 2021 is ₹42,00,000 for 7,00,000 units (1 unit = 1 Kwh). 60% of power is used for production purpose (directly related to production volume) and remaining are for employee quarters and administrative offices.*

(ix)   *During the year 2023, the company has paid ₹ 60,00,000 for safety and maintenance works. The amount will increase in proportion to the volume of production.*

(x)   *During the year 2023, the company has paid ₹ 1,20,000 for the purchase of diesel to be used in car hired for administrative purposes. The cost of diesel will increase by 15% in year 2024.*

(xi)   *During the year 2023, the company has paid ₹ 6,00,000 for car hire charges (excluding fuel cost). In year 2024, the company has decided to reimburse the diesel cost to the car rental company. Doing this will attract 5% GST on Reverse Charge Mechanism (RCM) basis on which the company will not get GST input credit.*

(xii)   *Depreciation on fixed assets for the year 2023 is ₹80,40,00,000 and it will be 15% lower in 2024.*

You being an associate to the budget controller of the company is expected to answer the following question:

(i)   *What would be the sales volume for the FY 2024?*

     (a)   *4,70,400 tonnes*

     (b)   *4,70,000 tonnes*

     (c)   *4,70,600 tonnes*

     (d)   *4,70,200 tonnes*

(ii)   *What would be quantity of raw material in FY 2024?*

         (a)   9,66,000 tonnes

         (b)   1,81,000 tonnes

         (c)   10,81,900 tonnes

         (d)   10,81,920 tonnes

(iii)   *What would be the car hire charges for the FY 2023?*

         (a)   ₹6,00,000

         (b)   ₹6,50,000

         (c)   ₹6,40,000

         (d)   ₹6,20,000

(iv)   *What would be the car hire charges for the FY 2024?*

         (a)   ₹6,00,000

         (b)   ₹7,74,900

         (c)   ₹6,83,000

         (d)   ₹6,20,000

(v)   *What would be the budgeted profit/ loss for the year 2024?*

         (a)   ₹1273.043 lakhs

         (b)   (₹5142 lakhs)

         (c)   ₹5142 lakhs

         (d) (₹1273.043 lakhs)

Answers To The Case Scenarios

1.

i.	(a)	ii.	(d)	iii.	(a)	iv.	(b)	v.	(d)

(i)   (a)   4,70,400 tonnes

(ii) (d)   10,81,920 tonnes

(iii) (a)   ₹ 6,00,000

(iv) (b)   ₹7,74,900

(v)   (d)   (₹1273.043 lakhs)

Revenue Budget (Flexible Budget) of M Ltd. for the Year 2024

	Particulars	PY 2023	CY 2024
A	Sales Volume (Tonnes)	4,20,000	4,70,400 [112%×4,20,000]
B	Selling Price per tonne (₹)	23,000	23,000
		(₹ in lakh)	(₹ in lakh)
C	Sales value [A×B]	96,600	1,08,192
D	Raw material Cost:		
(i)	Qty. of Material [2.3 tonnes × A] (tonnes)	9,66,000	10,81,920
(ii)	Price per tonne (₹)	4,500	4,500

(iii)	Total raw material cost (₹ in lakh) [(i)×(ii)]	43,470	48,686.40
E	Wages & Salary Cost:		
(i)	Wages to casual employees (15%×6,000 = 900 employees)	2,386.80 [900×26×12×₹850]	2,508.47 [900×26×12×₹893.33]
(ii)	Salary to permanent employees (85%×6,000 = 5,100 employees)	47,736 [5100×26×12×₹3,000]	51,316.20 [(5100×26×6×₹3,000)+ (5100×26×6×₹3,450)]
(iii)	Total wages & salary [(i)+(ii)+(iii)]	50,122.80	53,824.67

F	Power cost:		
(i)	For production (units)	4,20,000 [60%×7,00,000]	4,70,400 [112%×4,20,000]
(ii)	For employees & offices (units) [40%×7,00.000]	2,80,000	2,80,000
(iii)	Total Power consumption (units) [(i)+(ii)]	7,00,000	7,50,400
(iv)	Power rate per unit (₹) [₹42,00,000÷7,00,000]	6.00	6.00
(v)	Total power cost [(iii)×(iv)]	**42**	**45.024**
G	**Safety and maintenance Cost**	**60**	**67.20** [112%×4,20,000]
H	**Diesel cost**	**1.2**	**-**

I	**Car Hire charge:**		
(i)	Car hire charge	6	6
(ii)	Fuel reimbursement cost	–	1.38 [115%×1.2]
(iii)	GST@5% on RCM basis [5%×(i+ii)]	–	0.369
(iv)	**Total Car hire charge cost [(i)+(ii)+(iii)]**	**6**	**7.749**
J	**Depreciation**	**8,040**	**6,834** [85%×8040]
K	Total Cost [Sum of D to J]	1,01,742	1,09,465.043
L	**Profit/ (Loss) [C-L]**	**(5,142)**	**(1,273.043)**

CA INTER
COST & FM ECO
FEB 2022 RESULTS
Congratulations!

Rajvi
91 Marks

Suraj
85 Marks

Kush
84 Marks

Ankit
84 Marks

Mayank
81 Marks

Aditi
82 Marks

Gaurav
78 Marks

Mahak
77 Marks

Harsh
76 Marks

Sakshi
75 Marks

Yogita
74 Marks

Bhavesh
73 Marks

Gaurav
71 Marks

Anurag
71 Marks

Vinay
70 Marks

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