

15. ACTIVITY BASED COSTING

ASSIGNMENT SOLUTIONS

PROBLEM NO. 1

i) Statement Showing Overhead Cost per unit "Traditional Method"

	Gel Pen (Rs.)	Ball Pen (Rs.)
Units	5,500	24,000
Overheads (Rs.) (Refer to W.N.)	4,80,000 (20 x 24,000 hrs.)	10,80,000 (20 x 54,000 hrs.)
Overhead Rate per unit (Rs.)	87.27 (Rs. 4,80,000 / 5,500 units)	45 (Rs. 10,80,000 / 24,000 units)

Working Notes:

Overhead Rate per Machine Hour: $\frac{\text{Total Overhead incurred by the Company}}{\text{Total Machine Hours}}$

$$= \frac{4,75,020 + 5,79,988 + 5,04,992}{24,000 \text{ hours} + 54,000 \text{ hours}} = \frac{\text{Rs. } 15,60,000}{78,000 \text{ hours}}$$

= Rs. 20 per machine hour

ii) Statement Showing "Activity Based Overhead Cost"

Activity Cost Pool	Cost Driver	Ratio	Total Amount (Rs.)	Gel Pen (Rs.)	Ball Pen (Rs.)
Volume Related Activity Costs	Machine hours	24:54	4,75,020	1,46,160	3,28,860
Setup Related Costs	No. of Setups	30:56	5,79,988	2,02,321	3,77,667
Purchase Related Costs	No. of Purchase Orders	240:448	5,04,992	1,76,160	3,28,832
Total Cost				5,24,641	10,35,359
Output (units)				5,500	24,000
Unit Cost (Overheads)				95.39	43.13

iii)

	Gel Pen (Rs.)	Ball Pen (Rs.)
Overheads Cost per unit (Rs.) (Traditional Method)	87.27	45
Overheads Cost per unit (Rs.) (ABC)	95.39	43.13
Difference per unit	-8.12	+1.87

(Volume related activity cost, set up related costs and purchase related cost can also be calculated under Activity Base Costing using Cost driver rate. However, there will be no changes in the final answer.)

PROBLEM NO. 2

1. Customer Profitability Analysis, Customer Cost Hierarchy

(amounts in Rs.)

	Wholesale Customers		Retail Customers	
Revenues:	W	H	R	T
Total Number of Suits ordered	$44 \times 400 = 17,600$	$62 \times 200 = 12,400$	$212 \times 30 = 6,360$	$250 \times 25 = 6,250$
Revenue at List Price	$17,600 \times 1,000 =$ $1,76,00,000$	$12,400 \times 1,000 =$ $1,24,00,000$	$6,360 \times 1,000 =$ $63,60,000$	$6,250 \times 1,000 =$ $62,50,000$
Less: Discount	$17,600 \times (1,000 -$ $700) = 52,80,000$	$12,400 \times (1,000 -$ $800) = 24,80,000$	$6,360 \times (1,000 -$ $850) = 9,54,000$	$6,250 \times (1,000 -$ $900) = 6,25,000$
Revenue at Actual Price	1,23,20,000	99,20,000	54,06,000	56,25,000
Less: Cost of Goods Sold	$17,600 \times 550 =$ $96,80,000$	$12,400 \times 550 =$ $68,20,000$	$6,360 \times 550 =$ $34,98,000$	$6,250 \times 550 =$ $34,37,500$
A. Gross Margin	26,40,000	31,00,000	19,08,000	21,87,500
Less: Customer - Level Costs				
Order Processing	$44 \times 1,225 =$ $53,900$	$62 \times 1,225 = 75,950$	$212 \times 1,225 =$ $2,59,700$	$250 \times 1,225 =$ $3,06,250$
Sales Visits	$8 \times 7,150 = 57,200$	$12 \times 7,150 =$ $85,800$	$22 \times 7,150 =$ $1,57,300$	$20 \times 7,150 =$ $1,43,000$

Delivery - Regular	$41 \times 1,500 = 61,500$	$48 \times 1,500 = 72,000$	$166 \times 1,500 = 2,49,000$	$190 \times 1,500 = 2,85,000$
Delivery - Rushed	$3 \times 4,250 = 12,750$	$14 \times 4,250 = 59,500$	$46 \times 4,250 = 1,95,000$	$60 \times 4,250 = 2,55,000$
B. Customer level Costs	1,85,350	2,93,250	8,61,500	9,89,250
C. Customer Level Operating Income (A - B)	24,54,650	28,06,750	10,46,500	11,98,250
Customer level operating income as a % on Revenues at Actual prices	19.92%	28.29%	19.35%	21.30%

2. Measures to increase Profits:

- a) ABC System highlights that Customer Level Costs of R & T are high due to - (a) high number of orders, (b) high number of customer visits, and (c) high number of rushed deliveries. The CEO should consider whether this high level of activity can be reduced without reducing customer revenues.
- b) The CEO should also consider reduction in the level of price discounting for the customers, especially.

3. Income statement of MNP suits

(in Rs.)

Particulars	Wholesale customers	Retail customers	Total
Customer level operating income	52,61,400	22,44,750	75,06,150
Less: Distribution channel cost	17,50,000	10,50,000	28,00,000
Distribution channel level operating income	35,11,400	11,94,750	47,06,150
Less: Corporate sustaining costs			12,50,000
Operating Income			34,56,150

PROBLEM NO. 3

i) Calculation of cost driver rate:

Cost pool	Budgeted overheads (Rs.)	Cost driver	Cost driver rate (Rs.)
Material procurement	18,42,000	1,200	1,535.00
Material handling	8,50,000	1,240	685.48
Maintenance	24,56,000	17,550	139.94
Set-up	9,12,000	1,450	628.97
Quality control	4,42,000	1,820	242.86

ii) Calculation of cost for the batch:

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

PROBLEM NO. 4

i) Statement Showing “Activity Rate”

Activity	Activity Cost [a] (Rs.)	Activity Driver	No. of Units of Activity Driver [b]	Activity Rate [a] / [b] (Rs.)
Providing ATM Service	1,00,000	No. of ATM Transactions	2,00,000	0.50
Computer Processing	10,00,000	No. of Computer Transactions	25,00,000	0.40
Issuing Statements	8,00,000	No. of Statements	5,00,000	1.60
Customer Inquiries	3,60,000	Telephone Minutes	6,00,000	0.60

ii) Statement Showing "Cost of Product"

Activity	Checking Accounts (Rs.)	Personal Loans (Rs.)	Gold Visa (Rs.)
Providing ATM Service	90,000 (1,80,000 tr. x Rs. 0.50)	---	10,000 (20,000 tr. x Rs. 0.50)
Computer Processing	8,00,000 (20,00,000 tr. x Rs. 0.40)	80,000 (2,00,000 tr. x Rs. 0.40)	1,20,000 (3,00,000 tr. x Rs. 0.40)
Issuing Statements	4,80,000 (3,00,000 st. x Rs. 1.60)	80,000 (50,000 st. x Rs. 1.60)	2,40,000 (1,50,000 st. x Rs. 1.60)
Customer Inquiries	2,10,000 (3,50,000 min. x Rs. 0.60)	54,000 (90,000 min. x Rs. 0.60)	96,000 (1,60,000 min. x Rs. 0.60)
Total Cost [a]	Rs. 15,80,000	Rs. 2,14,000	Rs. 4,66,000
Units of Product [b]	30,000	5,000	10,000
Cost of each Product [a] / [b]	52.67	42.80	46.60

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THE END

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