SUGGESTED SOLUTION

INTERMEDIATE MAY 2019 EXAM

SUBJECT – COSTING

Test Code - CIM 8091

BRANCH - () (Date :)

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Answer 1:

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

	Product			
	M (Rs.)	**S (**Rs.)	**T (**Rs.)	**Total (**Rs.)
Power (Refer to working note)	40,000 (10,000 kWh × Rs.4)	80,000 (20,000 kWh × Rs.4)	60,000 (15,000 kWh × Rs.4)	1,80,000
Quality Inspections (Refer to working note)	1,05,000 (3,500 inspections × Rs.30)	75,000 (2,500 inspections × Rs. 30)	90,000 (3,000 inspections × Rs. 30)	2,70,000

Working note :

Rate per unit of cost driver:

Power	(Rs. 2,00,000 / 50,000 kWh)	Rs. 4/kWh
Quality Inspection	(Rs. 3,00,000 / 10,000 inspections)	Rs. 30 per inspection

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

	(Rs.)
Power (Rs.2,00,000 – Rs. 1,80,000)	20,000
Quality Inspections (Rs.. 3,00,000 – Rs. 2,70,000)	30,000
Total cost of unused capacity	50,000

(iii) Factors management consider in choosing a capacity level to compute the budgeted fixed overhead cost rate:

- Effect on product costing & capacity management
- Effect on pricing decisions.
- Effect on performance evaluation
- Effect on financial statements

- Regulatory requirements.
- Difficulties in forecasting chosen capacity level concepts.

Answer 2:

(i) Statement showing the earnings of 3 workers on day basis and labour cost for 100 pieces .

Name of worker	Actual output (units)	Day wages @ Re. 0.75 per hour for 8 hrs.	Labour cost per 100 pieces
Achyuta	180	6.00	(6 x 100 ÷ 180) = Rs. 3.33
Ananta	120	6.00	(6 x 100 ÷ 120) = Rs. 5.00
Govinda	100	6.00	(6 x 100 ÷ 100) - Rs. 6.00
	400	18.00	

Average cost of labour to produce 100 pieces

For 400 pieces, labour cost = Rs. 18

For 100 pieces, labour cost = (18 x 100) / 400 or Rs. 4.50

(ii) 10 units (standard hourly output) = Re. 0.75

100 units = Rs. 7.50

(ii) Statement showing the earnings of 3 workers on piece rate basis and labour cost per 100 pieces

Name of worker	Actual output (units)	Piece wages @ Re. 0.075 per unit	Labour cost per 100 pieces
Achyuta	180	13.50	7.50
	120	9.00	7.50
Govinda	100	7.50	7.50
	400	30.00	

Average cost of labour (30 / 400) x 100 = Rs. 7.50 per 100 pieces.

(iii) Statement showing the earnings of 3 workers under Halsey scheme and labour cost per 100 pieces

Name of worker	Actual output (Pieces)	Std. time for actual output (Hours)	Actual time taken (Hours)	Time saved (Hours)
Achyuta	180	180 ÷ 10* = 18	8	10
Ananta	120	12	8	4
Govinda	100	10	8	2

*One Standard hour — 10 units.

Name of worker	Earnings (Rs.)	Labour cost per 100 pieces (Rs.)
Achyuta	8 x 0.75 + [(50 ÷ 100) x 10 x 0.75] = 6.00 + 3.75 = Rs.9.75	(9.75 x 100) ÷ 180 = Rs.5.42
Ananta	8 x 0.75 + [(50 ÷ 100) x 4 x 0.75] = 6.00 + 1.50 = Rs.7.50	(7.50 x 100) ÷ 120 = Rs.6.25
Govinda	8 x 0.75 + [(50 ÷ 100) x 2 x 0.75] = 6.00 + 0.75 = Rs.6.75	(6.75 x 100) ÷ 100 = Rs.6.75

Total earnings of 3 workers = Rs. (9.75 + 7.50 + 6.75) = Rs. 24.00

Average cost (24 ÷ 400) x 100 = Rs. 6 per 100 pieces.

(iv) Statement showing the earnings of 3 workers under Rowan Scheme and labour cost per 100 pieces

Earnings = Hours worked x Rate per hour + $\left(\frac{\text{Time saved}}{\text{Time allowed}}\right)$ x Hours worked x Rate per hour)

Name of worker	Earnings (Rs.)	Labour cost per 100 pieces (Rs.)
Achyuta	8 x 0.75 + (10/18 x 8 x 0.75) = Rs.6.00 + 3.33 = Rs.9.33	100/180 x 9.33 = 5.18
Ananta	8 x 0.75 + (4/12 x 8 x 0.75) = Rs.6.00 + 2.00 = Rs.800	100/120 x 8.00 = 6.67
Govinda	8 x 0.75 + (2/10 x 8 x 0.75) = Rs.6.00 + 1.20 = Rs.7.20	100/100 x 7.20 = 7.20

Total earnings Rs. (9.33 + 8.00. + 7.20) = Rs. 24.53

Average labour cost for 100 pieces = (24.53 ÷ 400) x 100 = Rs. 6.13.

Answer 3:

Effective Machine Running Hours

No. of working days for the year = 300			
Total number of working hours @ 8 hours per day			2,400 hrs
Less: Machine maintenance time			400 hrs
Effective machine hours			2,000 hrs.
Calculation for machine hour rate:-			
Cost of Electricity: 2000 hrs x 15 units x Rs. 2.00 per unit			Rs.60,000
Cost of Heating: Rs. 2500 x 12 months			30,000
Maintenance Cost: (Rs. 500 ÷ 6) x 300 days			25,000
Operators Cost: [{3 x Rs. 450) + 40% of (3 X 450)} ÷ 6] x 50 weeks	15,750		
Departmental and General Overheads			
Allocation of last year	= Rs. 60,000		
Expected increase 12.5%	= 7,500		
	67,500		
allocation for one machine:- Rs. 67,500 ÷ 6			11,250
Depreciation :			
Cost of machine	= Rs. 7,50,000		
Less : Scrap	30,000		
	7,20,000		
Depreciation for one year = Rs. 7,20,000 ÷ 15	=		48,000
			1,90,000
Machine hour rate = Rs. 1,90,000 ÷ 2,000 hrs		= Rs. 95.00	

Answer 4:

(i) **RST Limited's Statement of operating income and gross margin percentage for each of its three distribution channel**

	General Super Market Chains	Drugstore Chains	Chemist Shops	Total
Revenues: (Rs.)	2,80,41,750 (330 × Rs. 84,975)	2,38,21,875 (825 × Rs. 28,875)	1,49,73,750 (2,750 × Rs. 5,445)	6,68,37,375
Less: Cost of goods sold: (Rs.)	2,72,25,000 (330 × Rs. 82,500)	2,26,87,500 (825 × Rs. 27,500)	1,36,12,500 (2,750 × Rs. 4,950)	635,25,000
Gross Margin: (Rs..)	8,16,750	11,34,375	13,61,250	33,12,375
Less: Other operating costs: (Rs.)				8,27,970
Operating in-come: (Rs..)				24,84,405
Gross Margin	2.91%	4.76 %	9.09%	4.96%
Operating in-come %				3.72

(ii) Computation of rate per unit of the cost allocation base for each of the five activity areas for April 20X7

	(Rs .**)**
Customer purchase order processing (Rs.. 2,20,000/ 5,500 orders)	40 order
Line item ordering (Rs.. 1,75,560/ 58,520 line items)	3 line item order
Store delivery (Rs. 1,95,250/ 3,905 store deliveries)	50 delivery

Cartons dispatched (Rs. 2,09,000/ 2,09,000 dispatches)	1 dispatch
Shelf-stocking at customer store (Rs.) (Rs. 28,160/ 1,760 hours)	16 hour

(iii) Operating Income Statement of each distribution channel in April-20X7 (Using the Activity based Costing information)

	General Super Market Chains	**Drugstore Chains**	**Chemist Shops**
Gross margin (Rs..) : (A) (Refer to (i) part of the answer)	816750	1134375	1361260
Operating cost (Rs..) : (B) (Refer to working note)	162910	190410	474650
Operating Income (Rs.) : (A – B)	653840	943965	886600
Operating income (in %) (Operating income / Revenue) x 100	2.33	3.96	5.96

Comments and new insights : The activity-based cost information highlights, how the 'Chemist Shops' uses a larger amount of RST Ltd.'s resources per revenue than do the other two distribution channels. Ratio of operating costs to revenues, across these markets is:

General supermarket chains (Rs. 1,62,910/ Rs.. 2,80,00,750) × 100	0.58%
Drug store chains (Rs. 1,90,410/ Rs. 2,38,21,875) × 100	0.80%
Chemist shops (Rs. 4,74,650/ Rs. 1,49,73,750) ×100	3.17%

Working note:

Computation of operating cost of each distribution channel:

	General Super Market Chains (Rs.**)**	**Drugstore Chains (**Rs.**)**	**Chemist Shops (**Rs.**)**
Customer Purchasing order processing	15400 (Rs.0.40 x 385 orders)	39600 (Rs.0.40 x 990 orders)	165000 (Rs.0.40 x 4125 orders)
Line item ordering	16170 (Rs. 3 x 14 x 385)	35640 (Rs. 3 x 12 x 990)	123750 (Rs. 3 x 10 x 4125)
Store Delievery	16500 (Rs. 50 x 330 delivery)	41250 (Rs. 50 x 825 delivery)	137500 (Rs. 50 x 2750 delivery)
Cartons Dispatched	99000 (Rs. 1 x 300 cartons x 300 deliveries)	66000 (Rs. 1 x 80 cartons x 825 deliveries)	44000 (Rs. 1 x 16 cartons x 2750 deliveries)
Shelf Stocking	15840 (Rs. 16 x 330 deliveries x 3 Av. Hrs.)	7920 (Rs. 16 x 825 deliveries x 0.6 Av. Hrs.)	4400 (Rs. 16 x 2750 deliveries x 0.1 Av. Hrs.)
Operating Cost	162910	190410	474650

iv) Challenges faced in assigning total operating cost of Rs. **8,27,970 :**

- Choosing an appropriate cost driver for activity area.
- Developing a reliable data base for the chosen cost driver.
- Deciding, how to handle costs that may be common across several activities.
- Choice of the time period to compute cost rates per cost driver.
- Behavioral factors.

Answer 5:

(i) Amount of under – absorption of production overheads during the year 20X1 - 12

		Rs.
Total production overheads actually incurred		6,00,000
during the year 20X1 – X2		
Less : 'Written off' obsolete stores	Rs. 45,000	
Wages paid for strike period	Rs. 30,000	75,000

Net Production overheads actually incurred : (A)		5,25,000
Production overheads absorbed by 48,000 machine		
Hours @ Rs. 10 per hour : (B)		4,80,000
Amount of under – absorption of production overheads : [(A) – (B)]		45,000

(ii) Accounting treatment of under absorption of production overheads

It is given in the statement of the question that 20,000 units were completely finished and 8,000 units were 50% complete, one third of the under – absorbed overheads were due to lack of production planning and the rest were attributable to normal increase in costs.

		Rs.
1.	(33 – 1/3% of Rs. 45,000) i.e., Rs. 15,000 of under – absorbed overheads were due to lack of production planning. This being abnormal, should be debited to the Costing Profit and Loss A/c.	15,000
2.	Balance (66 – 2/3% of Rs. 45,000) i.e., Rs. 30,000 of under – absorbed overheads should be distributed over work – in – progress, finished goods and cost of sales by using supplementary rate.	30,000
	Total under – absorbed overheads	45,000

Apportionment of unabsorbed overheads of Rs. 30,000 over, work – in – progress, finished goods and cost of sales

	Equivalent Completed Units	**Rs.**
Work – in – Progress (4,000 units × Rs. 1.25) (Refer to working note)	4,000	5,000
Finished goods (2,000 units × Rs. 1.25)	2,000	2,500
Cost of sales (18,000 units × Rs. 1.25)	18,000	22,500
	24,000	30,000

Working Note :

Supplementary rate per unit = $\frac{Rs.30,000}{24,000}$ = Rs. 1.25

Answer 6:

(a) Statement showing the distribution of overheads (primary distribution)

Items of costs	Basis of apportionment	Total	Production Departments			Service Departments	
			A	B	C	X	Y
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Direct wages	Only service depts.	10,000	-	-	-	7,500	2,500
Rent and fates	Floor space@ Rs. 2.50 per sq. mtr. (Rs. 25,000 ÷ 10000)	25,000	5,000	6,250	7,500	5,000	1,250
General lighting	Lighting points (nos.) @ Rs. 50 per point(Rs. 3,000 ÷60)	3,000	500	750	1,000	500	250
Indirect wages	Direct wages (15%)	7,500	2,250	1,500	2,250	1,125	375
Power	H.P. @ Rs. 50 (Rs. 7,500 ÷ 150)	7,500	3,000	1,500	2,500	500	-
Depreciation	Cost of m/c @4%*	50,000	12,000	16,000	20,000	1,000	1,000
Sundries	Direct wages @ Rs 1	50,000	15,000	10,000	15,000	7,500	2,500
	Total (i)	1,53,000	37,750	36,000	48,250	23,125.	7,875

* (50,000/12,50,000) x 100 = 4%

Redistribution of Service Departments Expenses to Production Departments

Departments	Total	A	B	C	X	Y
X (given ratios)		4,625	6,937	9,250	(23,125)	2,313
Y		4,075	2,038	3,056	1,019	(10,188)
X		204	306	407	(1,019)	102
Y		41	20	31	10	(102)
X		2	3	5	(10)	-
Total (ii)		8,947	9,304	12,749	(23,125)	(7,875)
Grand Total (i) + (ii)	1,53,000	46,697	45,304	60,999	-	-
Production hours worked		6,226	4,028	4,066		
Overhead rate		7.50	11.25	15.00		

(b)

Direct material cost (given)	Rs.250.00
Direct labour cost	150.00
Prime cost	400.00

Production overheads:

Departments	Hours	Rate	Amount	
A	4	Rs. 7.50	Rs. 30.00	
B	5	11.25	56.25	
C	3	15.00	45.00	131.25
Total cost of production				531.25