



J.K. SHAH[®]
TEST SERIES
Evaluate Learn Succeed

SUGGESTED SOLUTION
INTERMEDIATE N'19 EXAM
SUBJECT- COSTING
Test Code – CIM 8138
BRANCH - () (Date :)

Head Office : Shraddha, 3rd Floor, Near Chinai College, Andheri (E), Mumbai – 69.
Tel : (022) 26836666

ANSWER-1

Working Note :

1. Effective machine hour when set – up time is unproductive :
 = Budgeted working hours – (Maintenance time + Setting – up time)
 = [2,592 – (300 + 92)] hours. = 2,200 hours.
2. Effective machine hour when set – up time is productive :
 = Budgeted working hours – maintenance time
 = (2,592 – 300) hours. = 2,292 hours.
3. Operators' wages per annum
 Basic wages (4 operators × Rs. 420 × 54 weeks) = Rs. 90,720
 Add : Fringe benefits (15% of Rs. 90,720) = Rs. 13,608
 Rs. 1,04,328
4. Depreciation per annum
Rs. 12,70,000 – Rs. 70,000 = Rs. 1,00,000
 12 years
5. Cost of special chemical solution
 324 days ÷ 6 days × Rs. 400 = Rs. 21,600

Computation of Machine hour Rate

	Amount p.a. (Rs.)	Amount per hour (Rs.) (when set – up time is unproductive)	Amount per hour (Rs.) (when set – up time is productive)
Standing charges	1,04,328		
Operators wages $\left(\frac{Rs.1,04,328}{8\ machines} \times \frac{1}{2,200\ hours}\right);$		5.93	
$\left(\frac{Rs. 1,04,328}{8\ machines} \times \frac{1}{2,292\ hours}\right)$			5.69
Departmental and general overhead (50,000 × 110)% $\left(\frac{Rs.55,000}{8\ machines} \times \frac{1}{2,200\ hours}\right);$	55,000	3.13	
$\left(\frac{Rs. 55,000}{8\ machines} \times \frac{1}{2,292\ hours}\right)$			3.00
(A)	1,59,328	9.06	8.69
<u>Machine Expenses</u>			
Depreciation $\left(\frac{Rs. 1,00,000}{2,200\ hours}\right); \left(\frac{Rs. 1,00,000}{2,292\ hours}\right)$	1,00,000	45.45	43.63
Electricity (16 units × Rs.3)		48.00	48.00
Special chemical solution $\left(\frac{Rs. 21,600}{2,200\ hours}\right); \left(\frac{Rs. 21,600}{2,292\ hours}\right)$	21,600	9.82	9.42
Maintenance $\left(\frac{Rs. 25,000}{2,200\ hours}\right); \left(\frac{Rs. 25,000}{2,292\ hours}\right)$	25,000	11.36	10.91
(B)		114.63	111.96

ANSWER-2(i) **Amount of under-absorption of production overheads during the year 2013-14**

	(Rs.)
Total production overheads actually incurred during the year 2013-14	6,00,000
Less: 'Written off' obsolete stores 45,000	Rs. 45,000
Wages paid for strike period <u>30,000</u>	Rs. 75,000
Net production overheads actually incurred: (A)	5,25,000
Production overheads absorbed by 48,000 machines hours @ Rs.10 per hour: (B)	4,80,000
Amount of under-absorption of production overheads: [(A)– (B)]	45,000

(3 MARKS)

(i) 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 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

(3 MARKS)

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

Accounting treatment:

Work-in-progress control A/c	Dr.	Rs. 5,000	
Finished goods control A/c	Dr.	Rs. 2,500	
Cost of Sales A/c	Dr.	Rs.22,500	
Profit & Loss A/c	Dr.	Rs.15,000	
			To Overhead control A/c
			Rs. 45,000

Working Note:

$$\text{Supplementary overhead absorption rate} = \frac{30000}{24000 \text{ units}} = \text{Rs. 1.25 per unit}$$

(4 MARKS)

ANSWER-3

- (i) **Statement showing the allocation of support department costs to the sales departments (using the Direct Method)**

Particulars	Basis of allocation	Sales departments		Support department	
		Corporate Sales (Rs.)	Consumer sales (Rs.)	Administrative (Rs.)	Information systems (Rs.)
Cost incurred		12,97,751	6,36,818	94,510	3,04,720
Re – allocation of cost of administrative department	Number of employees (6 : 4 : - : -)	56,706	37,804	(94,510)	----
Re – allocation of costs of information systems department	Processing time (6 : 5 : - : -)	1,66,211	1,38,509	----	(3,04,720)
Total		15,20,668	8,13,131		

(ii) Ranking of support departments based on percentage of their services rendered to other support departments

- Administration support department provides 23.077% $\left(\frac{21 \times 100}{42+28+21}\right)$ of its services to information systems support department. Thus 23.077% of Rs. 94,510 = Rs. 21,810.
- Information system support department provides 8.33% $\left(\frac{400}{2,400+2,000+400} \times 100\right)$ of its services to Administration support departments. Thus 8.33% of Rs. 3,04,720 = Rs. 25,383.

**Statement showing allocation of support costs
(By using step – down allocation method)**

Particulars	Basis of allocation	Sales department		Support department	
		Corporate sales	Consumer sales	Administrative	Information Systems
		(Rs.)	(Rs.)	(Rs.)	(Rs.)
Cost incurred		12,97,751	6,36,818	94,510	3,04,720
Re – allocation of cost administrative department	Number of employees (6 : 4 : - : 3)	43,620	29,080	(94,510)	<u>21,810</u> 3,26,530
Re – allocation of costs of information systems department	Processing time (6 : 5 : - : -)	1,78,107	1,48,423		<u>(3,26,530)</u>
Total		15,19,478	8,14,321		

(iii) An alternative ranking is based on the rupee amount of services rendered to other service departments, using the rupee figures obtained under requirement (ii) This approach would use the following sequence of ranking.

- Allocation of information systems overheads as first (Rs. 25,383 provided to administrative)
- Allocated administrative overheads as second (Rs. 21,810 provided to information systems).

(iv) Working notes :

(1) Percentage of services provided by each service department to other service departments and sales departments.

Particulars	Service departments		Sales departments	
	Administrative	Information system	Corporate Sales	Consumer Sales
Administrative	-	23.08%	46.15%	30.77%
Information systems	8.33%	-	50%	41.67%

(2) Total cost of the support department : (By using simultaneous equation method).

Let AD and IS be the total costs of support departments Administrative and Information systems respectively. These costs can be determined by using the following simultaneous equations :

$$\begin{aligned}
 \text{AD} &= 94,510 + 0.0833 \text{ IS} \\
 \text{IS} &= 3,04,720 + 0.2308 \text{ AD} \\
 \text{Or, AD} &= 94,510 + 0.0833 \{3,04,720 + 0.2308 \text{ AD}\} \\
 \text{Or, AD} &= 94,510 + 25,383 + 0.01922 \text{ AD} \\
 \text{Or, } 0.98077\text{AD} &= 1,19,893 \\
 \text{Or, AD} &= \text{Rs. } 1,22,243 \\
 \text{and IS} &= \text{Rs. } 3,32,934
 \end{aligned}$$

Statement showing the allocation of support department costs to the sales Departments (Using reciprocal allocation method)

Particulars	Sales department	
	Corporate sales (Rs.)	Consumer sales (Rs.)
Costs incurred	12,97,751	6,36,818
Re – allocation of cost administrative department (46.16% and 30.77% of Rs. 1,22,243)	56,427	37,614
Re – allocation of costs of information systems Department (50% and 41.67% of Rs. 3,32,934)	1,66,467	1,38,734
Total	15,20,645	8,13,166

ANSWER-4

(i) Computation of overhead absorption rate

(as per the current policy of the company)

Department	Budgeted Factory Overhead	Budgeted Direct Wages
Machinery	Rs. 3,60,000	Rs. 80,000
Assembly	1,40,000	3,50,000
Packing	1,25,000	70,000
	6,25,000	5,00,000

$$\begin{aligned} \text{Overhead absorption rate} &= \frac{\text{Budgeted Factory Overheads}}{\text{Budgeted Direct Wages}} \times 100 \\ &= \frac{\text{Rs.6,25,000}}{5,00,000} \times 100 = 125\% \text{ of Direct Wages} \end{aligned}$$

Selling Price of the Job No. CW—7083

Direct Material (Rs. 1200 + Rs. 600 + Rs. 300)	Rs.2,100.00
Direct Wages (Rs. 240 + Rs. 360 + Rs. 60)	660.00
Factory Overheads (125% or Rs. 660)	<u>825.00</u>

Total Factory Cost	3,585.00
Add: Mark-up (30% of Rs. 3585)	<u>1,075.50</u>
Selling Price	<u>4,660.50</u>

(3 MARKS)

(ii) **Methods available for absorbing factory overheads and their overhead recovery rates in different departments**

1. In machining department, machine usage is predominant. The overhead recovery rate based on machine hours should be calculated for this department as follows :

$$\text{Machine Hour Rate} = \frac{\text{Budgeted Factory Overheads}}{\text{Budgeted Machine Hours}}$$

$$= \text{Rs. } 3,60,000 \div 80,000 = \text{Rs. } 4.50 \text{ per hour}$$

2. In Assembly department, labour hour is predominant. The overhead recovery rate based on labour hours should be calculated for this department as follows :

$$\text{Machine Labour Hour Rate} = \frac{\text{Budgeted Factory Overheads}}{\text{Budgeted Direct Labour Hours}}$$

$$= \text{Rs. } 1,40,000 \div 1,00,000 = \text{Rs. } 1.40 \text{ per hour}$$

3. Packing Department— Labour is predominant factor in this department. Hence Direct Labour Hour method should be used in this department as follows :

$$\text{Machine Labour Hour Rate} = \frac{\text{Budgeted Factory Overheads}}{\text{Budgeted Labour Hours}}$$

$$= \text{Rs. } 1,25,000 \div 50,000 = \text{Rs. } 2.50 \text{ per hour}$$

Selling Price of the Job No. CW 7083

Direct Material	Rs. 2,100.00
Direct Wages	660.00
Factory Overheads(* Refer to overhead summary statement below)	<u>1078.00</u>
Factory Cost	3,838.00
Add : Mark-up (30% of Rs. 3,838)	<u>1,151.40</u>

*** Overhead Summary Statement**

Deptt.	Basis	Hours	Rate/Hour	Overhead Rs.
Machining	Machine hour	180	4.50	810.00
Assembly	Direct labour hour	120	1.40	168.00
Packing	Direct labour hour	40	2.50	100.00
				1,078.00

(4 MARKS)(iv) **Department wise statement of total under or over recovery of overheads :**

(a) Under Current Policy

	Department			
	Machining	Assembly	Packing	Total
	Rs.	Rs.	Rs.	Rs.
Direct Wages (Actual)	96,000	2,70,000	90,000	
Overheads recovered @ 125% of Direct Wages	1,20,000	3,37,500	1,12,500	5,70,000
Actual Overhead	3,90,000	84,000	1,35,000	6,09,000
(Under)/Over-recovery of overheads	(2,70,000)	2,53,500	(22,500)	(39,000)

(b) As per method suggested

	Department			
	Machining	Assembly	Packing	Total
Basis	96,000 Machine hrs.	90,000 labour hrs.	60,000 labour hrs	
Rate/hour (Rs.)	4.50	1.40	2.50	
Overhead Recovered (A)	4,32,000	1,26,000	1,50,000	7,08,000
Actual Overhead (B)	3,90,000	84,000	1,35,000	8,09,000
Under/Over recovery (A-B)	42,000	42,000	15,000	99,000

(3 MARKS)