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SUGGESTED SOLUTION

IPCC NOVEMBER 2017 EXAM

COSTING

Test Code - I N J 3 0 0 7

BRANCH - (MULTIPLE) (Date : 14.05.2017)

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Answer-1 :

(i) Calculation of Operating Cost per month for each vehicle

		Ramgarh	Pratapgarh	Devgarh	Total
A.	**Running Costs:**				
	- Cost of diesel (Working Note- 2)	1,25,280	70,992	92,800	2,89,072
	- Servicing cost (Working Note- 3)	9,000	—	3,000	12,000
		1,34,280	70,992	95,800	3,01,072
B.	**Fixed Costs:**				
	- Salary to drivers	72,000 (4 drivers × Rs. 18,000)	54,000 (3 drivers × Rs. 18,000)	90,000 (5 drivers × Rs. 18,000)	2,16,000
	- Salary to cleaners	44,000 (4 cleaners × Rs. 11,000)	33,000 (3 cleaners × Rs. 11,000)	55,000 (5 cleaners × Rs. 11,000)	1,32,000
	- Allocated garage parking fee	5,400 (4 vehicles × Rs. 1,350)	4,050 (3 vehicles × Rs. 1,350)	6,750 (5 vehicles × Rs. 1,350)	16,200
	- Depreciation (Working Note- 4)	36,733	32,800	38,542	1,08,075
	- Toll tax passes	2,850	3,020	—	5,870
		1,60,983	1,26,870	1,90,292	4,78,145
	Total [A + B]	2,95,263	1,97,862	2,86,092	7,79,217
	Operating Cost per vehicle	73,815.75 (Rs. 2,95,263 ÷ 4 vehicles)	65,954 (Rs. 1,97,862 ÷ 3 vehicles)	57,218.40 (Rs. 2,86,092 ÷ 5 vehicles)	64,934.75 (Rs. 7,79,217 ÷ 12 vehicles)

(ii) Vehicle operating cost per litre of milk

$$\frac{\text{Total Operating Cost per month}}{\text{Total milk carried a month}} = \frac{\text{Rs.}7,79,217}{1,47,00,000 \text{ Litres (Working Note-5)}} = \text{Rs.}0.053$$

Working Notes:

1. Distance covered by the vehicles in a month

Route		Total Distance (in K.M.)
Ramgarh	(4 vehicles × 3 trips × 2 × 24 km. × 30 days)	17,280
Pratapgarh	(3 vehicles × 2 trips × 2 × 34 km. × 30 days)	12,240
Devgarh	(5 vehicles × 2 trips × 2 × 16 km. × 30 days)	9,600

2. Cost of diesel consumption

	Ramgarh	Pratapgarh	Devgarh
Total distance travelled (K.M.)	17,280	12,240	9,600
Mileage per litre of diesel	8 kmpl	10 kmpl	6 kmpl
Diesel consumption (Litre)	2,160	1,224	1,600
	(17,280 ÷ 8)	(12,240 ÷ 10)	(9,600 ÷ 6)
Cost of diesel consumption @ Rs. 58 per litre (Rs.)	1,25,280	70,992	92,800

3. Servicing Cost

	Ramgarh	Pratapgarh	Devgarh
Total distance travelled (K.M.)	17,280	12,240	9,600
Covered under free service warranty	No	Yes	No
No. of services required	3	2	1
	(17,280 k.m. ÷	(12,240 k.m. ÷	(9,600 k.m. ÷
	5,000 k.m.)	5,000 k.m.)	5,000 k.m.)

Total Service Cost (Rs.)	9,000	-	3,000
	(Rs. 3,000 × 3)		(Rs. 3,000 × 1)

4. Calculation of Depreciation

	Ramgarh	Pratapgarh	Devgarh
No. of vehicles	4	3	5
Cost of a vehicle	11,02,000	13,12,000	9,25,000
Total Cost of vehicles	44,08,000	39,36,000	46,25,000
Depreciation per month	36,733	32,800	38,542
	$\left(\frac{\text{Rs.44,08,000 x 10\%}}{\text{12 months}}\right)$	$\left(\frac{\text{Rs.39,36,000 x 10\%}}{\text{12 months}}\right)$	$\left(\frac{\text{Rs.46,25,000 x 10\%}}{\text{12 months}}\right)$

5. Total volume of Milk Carried

Route		Milk Qty. (Litre)
Ramgarh	(25,000 ltr. × 0.7 × 4 vehicles × 3 trips × 30 days)	63,00,000
Pratapgarh	(25,000 ltr. × 0.7 × 3 vehicles × 2 trips × 30 days)	31,50,000
Devgarh	(25,000 ltr. × 0.7 × 5 vehicles × 2 trips × 30 days)	52,50,000
		1,47,00,000

(10 Marks)

Answer-2 :

Statement of Equivalent Production
(FIFO Method)

Input		Output		Equivalent Production			
Particulars	Units	Particulars	Units	Material		Labour & Overheads	
				(%)	Units	(%)	Units
Opening WIP	40,000	Transfer to Process II :					
Introduced	1,80,000	Opening WIP completed	40,000	-	-	75	30,000
		Introduced & completed	1,10,000	100	1,10,000	100	1,10,000
		Closing WIP	70,000	100	70,000	50	35,000
	2,20,000		**2,20,000**		**1,80,000**		**1,75,000**

Statement showing Cost for each element

Item of Cost	Equivalent Production	Cost Incurred (Rs.)	Cost per Unit (Rs.)
Material	1,80,000	6,60,000	3.66667
Labour & Overheads	1,75,000	14,80,000	8.45714
			12.12381

Statement of Apportionment of Cost

Transfer to Process II		
Opening WIP Completed		
Cost already Incurred Rs. (1,00,000 + 25,000 + 45,000)	1,70,000	
Cost Incurred during the Month		
Labour & Overheads (30,000 units × Rs.8.45714)	2,53,714	4,23,714
Introduced & Completed (1,10,000 units × Rs. 12.12381)		13,33,619
		17,57,333
Closing WIP		
Material (70,000 units × Rs. 3.66667)	2,56,667	
Labour and Overheads (35,000 units × Rs. 8.45714)	2,96,000	5,52,667

Process- A A/c

Particulars	Units	Amount (Rs.)	Particulars	Units	Amount (Rs.)
To Opening WIP	40,000	1,70,000	By Process II A/c	1,50,000	17,57,333
To Materials	1,80,000	6,60,000	By Closing WIP	7,000	5,52,667
To Labour		5,55,000			
To Overheads		9,25,000			
	2,20,000	**23,10,000**		**2,20,000**	**23,10,000**

(10 Marks)

Answer-3 :

(a) Calculation of Total wages and average wages per worker per month.

(i) When Current system of wages and incentive payment system is followed:

		Worst case	Optimal case	Best case
I	Standard Production (in units)			
	(45 hours × 4 units × 4 weeks × 118 workers)	84,960	84,960	84,960
II	No. of units to be produced	42,400	84,960	1,27,400
III	Efficiency {(II ÷ I) × 100}	49.91%	100%	149.95%
IV	Differential piece rate*	Rs.10	Rs.15	Rs.15
		(Rs.12.5× 0.8)	(Rs.12.5 × 1.2)	(Rs.12.5 × 1.2)
V	Total Wages (II × IV)	Rs.4,24,000	Rs.12,74,400	Rs.19,11,000
VI	Average wages per worker (V ÷ 118)	Rs.3,593.22	Rs.10,800	Rs.16,194.92

*For efficiency less than 100%, 83% of piece rate and for efficiency more than or equals to 100%, 125% of piece rate may also be taken.

(ii) When workers' demand for time rate wages and Halsey premium plan is accepted:

		Worst case	Optimal case	Best case
I	No. of units expected to be produced (units)	42,400	84,960	1,27,400
II	Standard no. units in an hour (units)	4	4	4
III	Standard Hours (I ÷ II)	10,600	21,240	31,850
IV	Expected working hours			
	(45 hours × 4 weeks × 118 workers)	21,240	21,240	21,240
V	Hours to be saved (III – IV)	—	—	10,610
VI	Time wages (IV × Rs.50)	Rs.10,62,000	Rs.10,62,000	Rs.10,62,000
VII	Incentive under Halsey Premium Plan $\left(\frac{1}{2} \text{ x Time Saved x Rs.50}\right)$	—	—	Rs.2,65,250
VIII	Total Wages (VI +VII)	Rs.10,62,000	Rs.10,62,000	Rs.13,27,250
IX	Average wages per worker (VIII ÷ 118)	Rs.9,000	Rs.9,000	Rs.11,247.88

(b) Calculation of gain or loss in the current monthly income of Mr. K:

Wages earned in October 2015:

Standard production unit (45 hours × 4 weeks × 4 units)	720 units
No. of units produced	1,050 units

	Efficiency	145.83%
	Differential piece rate (refer the above part)	Rs.15
I	Total wages (1,050 units × Rs.15)	Rs.15,750
	Expected wages under the new scheme	
	Standard hours (1,050 units ÷ 4 units)	262.50 hours
	Expected hours to be taken (45 hours × 4 weeks)	180 hours
	Time saved	82.50 hours
	Time wages (180 hours × Rs.50)	Rs.9,000
	Incentive $\left(\frac{1}{2} \text{ x Time saved x Rs.50}\right)$	Rs.2,062.50
II	Total expected wages	Rs.11,062.50
	Loss from the proposed scheme (II – I)	Rs.4,687.50

Supporting the demand of colleague workers will cost Rs.4,687.50 in the next month to Mr. K.

(8 Marks)

Answer-4 :

(i) Production Budget (in units) for the year ended 31st March 2016

	Product M	**Product N**
Budgeted sales (units)	28,000	13,000
Add: Increase in closing stock	320	160
No. good units to be produced	28,320	13,160
Post production rejection rate	4%	6%
No. of units to be produced	29,500	14,000
	$\left(\frac{28,320}{0.96}\right)$	$\left(\frac{13,160}{0.94}\right)$

(ii) Purchase budget (in kgs and value) for Material Z

	Product M	**Product N**
No. of units to be produced	29,500	14,000
Usage of Material Z per unit of production	5 kg.	6 kg.
Material needed for production	1,47,500 kg.	84,000 kg.
Materials to be purchased	1,63,889 kg.	88,421 kg.
	$\left(\frac{1,47,500}{0.90}\right)$	$\left(\frac{84,000}{0.95}\right)$
Total quantity to be purchased	2,52,310 kg.	
Rate per kg. of Material Z	Rs.36	
Total purchase price	Rs.90,83,160	

(5 Marks)

Answer-5 :

As the contract is 80% complete, so 2/3rd of the notional profit on cash basis has been transferred to Profit & Loss A/c in the first year of contract.

$\therefore$ Amount transferred to Profit & Loss A/c = $\frac{2}{3}$ x Notional Profit × % of cash received

Or, 6,000 = $\frac{2}{3}$ x Notional Profit × $\frac{75}{100}$

Or, Notional Profit = $\frac{6,000x3x100}{2x75}$ = Rs.12,000

Computation of Value of Work Certified

	(Rs.)
Cost of work to date	88,000
Add: Notional profit	12,000
	1,00,000
Less: Cost of work uncertified	8,000
Value of work certified	92,000

Computation of Contract price:

Since the Value of Work Certified is 80% of the Contract Price, therefore

$$\text{Contract Price} = \frac{\text{Value of Work Certified}}{80\%}$$

$$= \frac{\text{Rs.}92{,}000}{80\%} = \text{Rs.}1{,}15{,}000$$

(5 Marks)

Answer-6 :

Working Note:

Statement showing apportionment of joint costs on net realisable value basis

Products	Sales value (1) (Rs.)	Post (2) (Rs.)	Net realisable separation (1)–(2)=(3) (Rs.)	Apportioned value joint costs (4) (Rs.)
A	50,00,000 (2,00,000 units × Rs. 25)	12,50,000	37,50,000	26,25,000
B	5,10,000 (30,000 units × Rs. 17)	1,50,000	3,60,000	2,52,000
C	3,00,000 (25,000 units × Rs. 12)	50,000	2,50,000	1,75,000
D	2,00,000 (20,000 units × Rs. 10)	—	2,00,000	1,40,000
E	15,00,000 (75,000 units × Rs. 20)	1,50,000	13,50,000	9,45,000
			59,10,000	41,37,000

Total joint cost = Raw material costs + Manufacturing expenses
= Rs. 35,90,000 + Rs. 5,47,000 = Rs. 41,37,000

$$\text{Apportioned joint cost} = \frac{\text{Total joint cost}}{\text{Total net realisable value}} \times \text{Net realisable value of each product}$$

$$\text{Apportioned joint cost for Product A} = \frac{\text{Rs.}41{,}37{,}000}{\text{Rs.}59{,}10{,}000} \times \text{Rs. } 37{,}50{,}000 = \text{Rs. } 26{,}25{,}000$$

Similarly, the apportioned joint cost for products B, C, D and E are Rs. 2,52,000; Rs. 1,75,000; Rs.1,40,000 and Rs. 9,45,000 respectively.

(a) Statement showing income forecast of the company assuming that none of its products are further processed

	Products					
	A (Rs.)	**B (Rs.)**	**C (Rs.)**	**D (Rs.)**	**E (Rs.)**	**Total (Rs.)**
Sales revenue	34,00,000 (2,00,000 units × Rs. 17)	3,90,000 (30,000 units × Rs. 13)	2,00,000 (25,000 units × Rs. 8)	2,00,000 (20,000 units × Rs. 10)	10,50,000 (75,000 units × Rs. 14)	52,40,000
Less: Apportioned joint cost	26,25,000	2,52,000	1,75,000	1,40,000 (Refer to working note)	9,45,000	41,37,000
Excess of revenue over joint cost of manufacturing	7,75,000	1,38,000	25,000	60,000	1,05,000	11,03,000
Less: Fixed cost						4,73,000
Profit						6,30,000

(b) Statement showing income forecast of the company: assuming that products A, B, C and E are further processed (Refer to working note)

	Products					
	A (Rs.)	**B (Rs.)**	**C (Rs.)**	**D (Rs.)**	**E (Rs.)**	**Total (Rs.)**
Sales revenue : (X)	50,00,000	5,10,000	3,00,000	2,00,000	15,00,000	75,10,000
Apportioned joint cost : (Y)	26,25,000	2,52,000	1,75,000	1,40,000	9,45,000	41,37,000
Further processing cost : (Z)	12,50,000	1,50,000	50,000	-	1,50,000	16,00,000
Total manufacturing cost : (K)=(Y)+(Z)	38,75,000	4,02,000	2,25,000	1,40,000	10,95,000	57,37,000
Excess of sales revenue over total manufacturing cost : [(X)–(K)]	11,25,000	1,08,000	75,000	60,000	4,05,000	17,73,000
Less: Fixed cost						4,73,000
Profit						13,00,000

Suggested production plan for maximising profits:

On comparing the figures of excess of revenue over cost of manufacturing in the above statements one observes that the concern is earning more after further processing of A, C and E products but is loosing a sum of Rs. 30,000 in the case of product B (if it is processed further). Hence the best production plan will be to sell A, C and E after further processing and B and D at the point of split off. The profit statement based on this suggested production plan is as below :

Profit statement based on suggested production plan

	Products					
	A (Rs.)	**B (Rs.)**	**C (Rs.)**	**D (Rs.)**	**E (Rs.)**	**Total (Rs.)**
1	**2**	**3**	**4**	**5**	**6**	**7**
Sales revenue : (X)	50,00,000	3,90,000	3,00,000	2,00,000	15,00,000	73,90,000
Appointed joint cost : (Y)	26,25,000	2,52,000	1,75,000	1,40,000	9,45,000	41,37,000
Further processing cost : (Z)	12,50,000	-	50,000	-	1,50,000	14,50,000
Total manufacturing cost : (K)=(Y)+(Z)	38,75,000	2,52,000	2,25,000	1,40,000	10,95,000	55,87,000
Excess of sales revenue over manufacturing cost : [(X)–(K)]	11,25,000	1,38,000	75,000	60,000	4,05,000	18,03,000
10.13 Cost Accounting						
Less: Fixed cost						4,73,000
Profit						13,30,000

Hence the profit of the company has increased by Rs. 30,000. **(12 Marks)**