Test Series: March, 2019

MOCK TEST PAPER – 1 INTERMEDIATE (IPC): GROUP – I PAPER – 3: COST MANAGEMENT ACCOUNTING Suggested Answers/Hints

1.	(a)	(i)	Break-even sales = $\frac{Fixec}{P/V}$	lCost Ratio				
			P/V Ratio = $\frac{\text{Change in Product}}{\text{Change in Sal}}$	bfit les×100 or,				
			Or, <u>Rs.37,50,000</u> ×100 (or, 20%				
			Break-even sales	$= \frac{\text{Rs.98,50,000}}{20\%} = \text{Rs.4,92,50,000}$				
		(ii)	Profit/ loss	= Contribution – Fixed Cost				
				= Rs.8,20,00,000 × 20% - Rs.98,50,000				
				= Rs.1,64,00,000 - Rs.98,50,000 = Rs.65,50,000				
	(iii) To earn same amount of profit in 20X8-X9 as was in 20X7-X8, it has to amount of contribution as in 20X7-X8.							
			Sales – Variable cost = Contribution equal to 20X7-X8 contribution					
			Contribution in 20X7-X8	= Sales in 20X7-X8 × P/V Ratio in 20X7-X8				
				= Rs.5,93,10,000 × 20% = Rs.1,18,62,000				
			Let the number of units to be sold in 20X8-X9 = X					
			Sales in 20X8-X9 – Variable cost in 20X8-X9 = Desired Contribution					
			90 X - 80 X = Rs.1,18,62,0	000				
			Or, 10 X = 1,18,62,000					
			Or, X = 11,86,200 units					
			Therefore, Sales amount re	quired to earn a profit equals to 20X7-X8 profit				
			= Rs. 90 × 11,86,200 unit	s = Rs. 10,67,58,000				
	(b)	(i)	Optimum run size or Econor	mic Batch Quantity (EBQ) = $\sqrt{\frac{2 \times D \times S}{C}}$				
			Where, D = Annual dema	and i.e. 1.15% of 8,00,00,000 = 9,20,000 units				
			S = Set-up cost p	per run = Rs. 3,500				
			C = Inventory hol	lding cost per unit per annum				
			= Rs. 1.5 × 12	months = Rs. 18				
			$EBQ = \sqrt{\frac{2 \times 9, 20, 00}{2}}$	0units×Rs.3,500 Rs.18				

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	Batch size	No. of set- ups	Set-up Cost (Rs.)	Inventory holding cost (Rs.)	Total Cost (Rs.)
	40,000 units	$\frac{23}{\left(\frac{9,20,000}{40,000}\right)}$	80,500 (23 × Rs. 3,500)	$\left(\frac{40,000\times \text{Rs.18}}{2}\right)$	4,40,500
В	18,915 units	49 (<u>9,20,000</u>) 18,915)	1,71,500 (49 × Rs. 3,500)	$\left(\frac{1,70,235}{\left(\frac{18,915\times Rs.18}{2}\right)}\right)$	3,41,735
				Extra Cost (A – B)	98,765

(ii) Calculation of Total Cost of set-up and inventory holding

(c) Calculation of Cost of Production and Profit for the month ended March, 20X9:

Particulars	Amount (Rs.)	Amount (Rs.)
Materials consumed:		
- Opening stock	6,06,000	
- Add: Purchases	28,57,000	
	34,63,000	
- Less: Closing stock	(7,50,000)	27,13,000
Direct wages		37,50,000
Prime cost		64,63,000
Factory expenses		21,25,000
		85,88,000
Add: Opening W-I-P		12,56,000
Less: Closing W-I-P		(14,22,000)
Factory cost		84,22,000
Less: Sale of scrap		(26,000)
Cost of Production		83,96,000
Add: Opening stock of finished goods		3,59,000
Less: Closing stock of finished goods		(3,09,000)
Cost of Goods Sold		84,46,000
Office and administration expenses		10,34,000
Selling and distribution expenses		7,50,000
Cost of Sales		1,02,30,000
Profit (balancing figure)		31,70,000
Sales		1,34,00,000

(d) Memorandum Reconciliation Accounts

Dr.				Cr.
		(Rs.)		(Rs.)
To Net Loss books	as per Costing	3,47,000	By Administration overheads over recovered in cost accounts	60,000

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То	Factory overheads under absorbed in Cost Accounts	40,000	By Interest on investment not included in Cost Accounts		96,000
То	Depreciation under charged in Cost Accounts	50,000	Ву	By Transfer fees in Financial books	
То	Income-Tax not provided in Cost Accounts	54,000	Ву	Stores adjustment (Credit in financial books)	14,000
То	Interest on Loan Funds in Financial Accounts	2,45,000	Ву	Dividend received in financial books	32,000
			Ву	Net loss as per Financial books	5,10,00 0
		7,36,000			7,36,00 0

2. (a)

Process-I A/c

Particulars	Qty. (kgs)	Amount)	Particulars	Qty. (kgs)	Amount (Rs.)
To Material A	6,000	3,00,000	By Normal loss	500	8,000
To Material B	4,000	4,00,000	By Process-II Ac	9,200	7,38,857
To Labour		21,500	By Abnormal loss A/c	300	24,093
$\left(\frac{\text{Rs.92,000}\times430\text{hrs}}{800\text{hrs}}\right)$		49,450			
	10,000	7,70,950		10,000	7,70,950

 $* \frac{\{(₹3,00,000 + ₹4,00,000 + ₹21,500 + ₹49,450) - ₹8,000\}}{(10,000 - 500) \text{ units}} = \frac{₹7,70,950 - ₹8,000}{9,500 \text{ units}} = \text{Rs.80.3105}$

Particulars	Qty. (kgs)	Amount (Rs.)	Particulars	Qty. (kgs)	Amount (Rs.)		
To Process-I A/c	9,200	7,38,857	By Normal loss	1,000	-		
To Material C	6,600	8,25,000	By Packing Dept. A/c (See the working notes)	18,000	18,42,496		
To Material D	4,200	3,15,000	By WIP A/c (See the working notes)	1,000	1,00,711		
To Flavouring essence		3,300					
ToLabour		18,500					
To Overheads $\left(\frac{\text{Rs.92,000} \times 370 \text{ hrs}}{800 \text{ hrs}}\right)$		42,550					
	20,000	19,43,207		20,000	19,43,207		

Process-II A/c

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Particulars	Qty. (kgs)	Amount (Rs.)	Particulars	Qty. (kgs)	Amount (Rs.)
To Process-I A/c	300	24,093	By Bank	300	4,800
			By Costing Profit & Loss A/c		19,293
	300	24,093		300	24,093

Abnormal loss A/c

Working Notes:

Calculation of Equivalent Production units

Input	Units	Output	Units	Process-I		Mat-C & D		Labour & OH	
				(%)	Units	(%)	Units	(%)	Units
	9,200	Transferred to Packing.	18,000	100	18,000	100	18,000	100	18,000
Mat-C	6,600	Closing WIP	1,000	100	1,000	100	1,000	50	500
Mat-D	4,200	Normal loss	1,000	-				-	
	20,000		20,000		19,000		19,000		18,500

Calculation of Unit cost

Cost component	Amount (Rs.)	Equivalent units	Cost per unit (Rs.)
Transferred-in	7,38,857	19,000	38.8872
Material-C	8,25,000	19,000	43.4211
Material-D	3,15,000	19,000	16.5789
Flavouring essence	3,300	19,000	0.1737
Total Material Cost	18,82,157	19,000	99.0609
Labour	18,500	18,500	1.0000
Overheads	42,550	18,500	2.3000
Total Cost	19,43,207		102.3609

Value of Materials transferred to Packing Department

= 18,000 unit × Rs.102.3609 = 18,42,496

For Labour & Overheads 500 units × Rs.3.30

Value of WIP : For Materials- 1,000 units × Rs.99.0609 = Rs.99,061

<u>= Rs.1,650</u>

(b) Calculation of effective wages rate and weekly earnings of the workers A, B and C

Workers	Α	В	C	
Standard Output	96 units	96 units	96 units	
	(8 hrs. × 2 units × 6 days)	(8 hrs. × 2 units × 6 days)	(8 hrs. × 2 units × 6 days)	
Actual Output	132 units	108 units	96 units	

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Efficiency(%)	$\frac{132 \text{ units}}{96 \text{ units}} \times 100 = 137.5$	108units 96units	$\frac{96 \text{ units}}{96 \text{ units}} \times 100 = 100$	
Daily wages Rate	Rs. 360	Rs. 360	Rs. 360	
Incentive system	Emerson's Efficiency System	Merrick differential piece rate system	Taylor's differential piece work system	
Rate of Bonus	57.5% of time rate (20% + 37.5%)	20% of ordinary piece rate	25% of ordinary piece rate	
Effective Wage Rate	Rs. 70.875 per hour $\left(\frac{\text{Rs. 360}}{\text{8 hours}} \times 157.5\%\right)$	Rs. 27 per piece $\left(\frac{\text{Rs.360}}{16 \text{ units}} \times 120\%\right)$	Rs. 28.125 per piece $\left(\frac{\text{Rs.360}}{\text{16 units}} \times 125\%\right)$	
Total weekly earnings	Rs. 3,402 (8 hours × 6 days × Rs. 70.875)	Rs. 2,916 (108 units × Rs. 27)	Rs. 2,700 (96 units × Rs. 28.125)	

X = 12,500 units (Rs.40 - Rs.44) = 50,000 (A)

Y = 18,000 units (Rs.30 - Rs.28) = 36,000 (F)

Z = 88,500 units (Rs.10 - Rs.12) = 1,77,000 (A) 1,91,000 (A)

Material Usage Variance = Std. Price (Std. Qty - Actual Qty.)

 $Z = Rs.10 (6,000 \times 15 - 88,500) = 15,000 (F)$ 5,000 (A)

Material Mix Variance = Std. Price (Revised Std. Qty. - Actual Qty.)

X = Rs.40 (
$$\frac{1,19,000 \times 2}{20}$$
 - 12,500) = 24,000 (A)
Y = Rs.30 ($\frac{1,19,000 \times 3}{20}$ - 18,000) = 4,500 (A)
Z = Rs.10 ($\frac{1,19,000 \times 15}{20}$ - 88,500) = $\underline{7,500}$ (F) 21,000 (A)

Material Yield Variance = Std. Price (Std. Qty. - Revised Std. Qty.)

$$X = \text{Rs.40} (6,000 \times 2 - \frac{1,19,000 \times 2}{20}) = 4,000 \text{ (F)}$$

$$Y = \text{Rs.30} (6,000 \times 3 - \frac{1,19,000 \times 3}{20}) = 4,500 \text{ (F)}$$

$$Z = \text{Rs.10} (6,000 \times 15 - \frac{1,19,000 \times 15}{20}) = \underline{7,500 \text{ (F)}} 16,000 \text{ (F)}$$
Labour Rate Variance = Actual Hours (Std. Rate – Actual Rate)

$$= 2,500 \text{ hours (Rs.55 - Rs.58)} = 7,500 \text{ (A)}$$

Labour Efficiency Variance = Std. Rate (Std. Hours – Actual Hours) = Rs.55 (6,000 × 3 – 17,500) = 27,500 (F) 5

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Cost Pool	Cost (Rs.)	Cost Driver	Cost Driver Rate (Rs.)
	[A]	[B]	[C] = [A]÷[B]
Machine Department Expenses	18,48,000	Machine Hours (1,32,000 hrs.)	14.00
Assembly Department Expenses	6,72,000	Assembly Hours (42,000 hrs.)	16.00
Setup Cost	90,000	No. of Production Runs (450*)	200.00
Stores Receiving Cost	1,20,000	No. of Requisitions Raised on the Stores (120)	1,000.00
Order Processing and Dispatch	1,80,000	No. of Customers Orders Executed (3,750)	48.00
Inspection and Quality Control Cost	36,000	No. of Production Runs (450*)	80.00
Total (Rs.)	29,46,000		

*Number of Production Run is 450 (150 + 120 + 180)

(b)

Statement Showing "Overheads Allocation"

Particulars of Cost	Cost Driver	Р	Q	R	Total
Machine Department Expenses	Machine Hours	4,20,000 (30,000 × Rs.14)	6,72,000 (48,000 × Rs.14)	7,56,000 (54,000 × Rs.14)	18,48,000
Assembly Department Expenses	Assembly Hours	2,40,000 (15,000 × Rs.16)		4,32,000 (27,000 × Rs.16)	6,72,000
Setup Cost	No. of Production Runs	30,000 (150 × Rs.200)	24,000 (120 × Rs.200)	36,000 (180 × Rs.200)	90,000
Stores Receiving Cost	No. of Requisitions Raised on the Stores	40,000 (40 × Rs.1,000)	30,000 (30 × Rs.1,000)	50,000 (50 × Rs.1,000)	1,20,000
Order Processing and Dispatch	No. of Customers Orders Executed	60,000 (1,250 × Rs.48)	48,000 (1,000 × Rs.48)	72,000 (1,500 × Rs.48)	1,80,000
Inspection and Quality Control Cost	No. of Production Runs	12,000 (150 × Rs.80)	9,600 (120 × Rs.80)	14,400 (180 × Rs.80)	36,000
Overhead (Rs.)		8,02,000	7,83,600	13,60,400	29,46,000

4. (a) Effective machine hours = 200 hours × 75% = 150 hours

Computation of Comprehensive Machine Hour Rate

	Per month (Rs.)	Per hour (Rs.)
Fixed cost		
Supervision charges	18,000.00	

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Electricity and lighting	9,500.00	
Insurance of Plant and building (Rs.18,250 ÷12)	1,520.83	
Other General Expenses (Rs.17,500÷12)	1,458.33	
Depreciation (Rs.64,800÷12)	5,400.00	
	35,879.16	239.19
Direct Cost		
Repairs and maintenance	17,500.00	116.67
Power	65,000.00	433.33
Wages of machine man		139.27
Wages of Helper		109.41
Machine Hour rate (Comprehensive)		1,037.87

Wages	per	machine hour
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	Machine man	Helper
Wages for 200 hours		
Machine-man (Rs.400 × 25)	Rs.10,000.00	
Helper (Rs.275 × 25)		Rs.6,875.00
Dearness Allowance (DA)	Rs.4,575.00	Rs.4,575.00
	Rs.14,575.00	Rs.11,450.00
Production bonus (1/3 of Basic and DA)	4,858.33	3,816.67
Leave wages (10% of Basic and DA)	1,457.50	1,145.00
	20,890.83	16,411.67
Effective wage rate per machine hour	Rs.139.27	Rs.109.41

(b) Contract Account (For the year ended 20X7)

	Particulars	(Rs.)		Particulars		(Rs.)
То	Materials	6,75,000	By	Plant at site c/d (75% of Rs.3,00,000)		2,25,000
"	Wages	6,20,000	"	Work-in-progress c/d:		
33	Transportation cost	30,000		- Work certified	13,50,000	
33	Other expenses	30,000		- Work uncertified	<u>15,000</u>	13,65,000
33	Plant	3,00,000	33	Costing P&L A/c (Loss for the year)		65,000
		16,55,000				16,55,000

Contract Account (For the year ended 20X8)

	Particulars	(Rs.)		Particulars	(Rs.)
То	Plant at site b/d	2,25,000	By	Plant at site c/d	1,68,750
				(75% of Rs.2,25,000)	
"	Work-in-progress b/d:		"	Work-in-progress c/d:	
	- Work certified 13,50,000			- Work certified 45,00,000	
	-Work uncertified <u>15,000</u>	13,65,000		- Work uncertified 75,000	45,75,000

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"	Materials	10,50,000	
"	Wages	9,00,000	
"	Transportation cost	90,000	
"	Other expenses	75,000	
33	Costing P&L A/c (Notional Profit for the year)	10,38,750	
		47,43,750	47,43,750

Contract Account (For the year ended 20X9)

	Particulars	(Rs.)		Particulars	(Rs.)
То	Plant at site b/d	1,68,750	By	Plant at site c/d	1,26,563
				(75% of Rs.1,68,750)	
"	Work-in-progress b/d:		"	Contractee A/c	60,00,000
	- Work certified 45,00,000		"	Costing P&L A/c	3,66,187
				(Notional Loss for the year)	
	-Work uncertified 75,000	45,75,000			
"	Materials	9,00,000			
33	Wages	7,50,000			
33	Transportation cost	75,000			
37	Other expenses	24,000			
		64,92,750			64,92,750

5. (a) (i) Annual Cost Statement of three vehicles

	(Rs.)
Diesel {(1,34,784 km. ÷ 4 km) × Rs. 65) (Refer to Working Note 1)	21,90,240
Oil & sundries {(1,34,784 km. ÷ 100 km.) × Rs. 250}	3,36,960
Maintenance {(1,34,784 km. × Rs. 0.25) + Rs. 6,000} (Refer to Working Note 2)	39,696
Drivers' salary {(Rs.24,000 × 12 months) × 3 trucks}	8,64,000
Licence and taxes (Rs. 25,000 × 3 trucks)	75,000
Insurance	45,000
Depreciation {(Rs. 29,00,000 ÷ 10 years) × 3 trucks}	8,70,000
General overhead	1,15,600
Total annual cost	45,36,496

(ii) Cost per km. run

Cost per kilometer run = $\frac{\text{Total annual cost of vehicles}}{\text{Total kilometre travelled annually}}$ (Refer to Working Note 1)

= $\frac{\text{Rs.}45,36,496}{1,34,784 \text{ Kms}}$ =Rs. 33.66

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(iii) Freight rate per tonne km (to yield a profit of 10% on freight)

$$= \frac{\text{Rs. } 45,36,496}{6,06,528 \text{ kms}} = \text{Rs.7.48}$$

Freight rate per tonne km. $\left(\frac{\text{Rs. 7.48}}{0.9}\right) \times 1 = \text{Rs. 8.31}$

Working Notes:

1. Total kilometer travelled and Commercial tonnes kilometer (load carried) by three trucks in one year

Truck	One way distance in kms	No. of trips	Total distance covered in km per day (with load)	Total distance covered in km per day (up & down)	Load carried per trip / day in tonnes	Total effective tonnes km
	а	b	c = a × b	d = c × 2	е	f = 27/3 × c
1	16	4	64	128	6	576
2	40	2	80	160	9	720
3	30	3	90	180	12	810
Total			234	468	27	2,106

Total kilometre travelled by three trucks in one year

(468 km. × 24 days × 12 months)

Total effective tonnes kilometre of load carried by three trucks during one year

(2,106 tonnes km. × 24 days × 12 months) = 6,06,528 tonne-km

2. Fixed and variable component of maintenance cost:

Variable maintenance cost per km. = <u>Difference in maintenance cost</u> <u>Difference in distance travelled</u>

= 1,34,784

Fixed maintenance cost = Total maintenance cost-Variable maintenance cost

= Rs. 46,050 – 1,60,200 kms × Rs. 0.25= Rs. 6,000

(b) (a) Flexible Budget before marketing efforts:

	Product A (Rs.)		Product B (Rs.)	
	6,000 units		9,000 units	
	Per unit	Total	Per unit	Total
Sales	120.00	7,20,000	78.00	7,02,000
Raw material cost	60.00	3,60,000	42.00	3,78,000
Direct labour cost per unit	30.00	1,80,000	18.00	1,62,000

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Variable overhead per unit	12.00	72,000	6.00	54,000
Fixed overhead per unit	8.00	48,000	4.00	36,000
Total cost	110.00	6,60,000	70.00	6,30,000
Profit	10.00	60,000	8.00	72,000

(b) Flexible Budget after marketing efforts:

	Product A (Rs.) 7,500 units		Product B (Rs.) 9,500 units	
	Per unit	Total	Per unit	Total
Sales	120.00	9,00,000	78.00	7,41,000
Raw material cost	60.00	4,50,000	42.00	3,99,000
Direct labour cost per unit	30.00	2,25,000	18.00	1,71,000
Variable overhead per unit	13.20	99,000	6.60	62,700
Fixed overhead per unit	6.72	50,400	3.98	37,800
Total cost	109.92	8,24,400	70.58	6,70,500
Profit	10.08	75,600	7.42	70,500

6. (a) Controllable costs and Uncontrollable costs: Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre.

Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs.

(b) Cost plus contract: Under cost plus contract, the contract price is ascertained by adding a percentage of profit to the total cost of the work. Such types of contracts are entered into when it is not possible to estimate the contract cost with reasonable accuracy due to unstable condition of material, labour services etc.

Following are the advantages of cost plus contract:

- (i) The contractor is assured of a fixed percentage of profit. There is no risk of incurring any loss on the contract.
- (ii) It is useful specially when the work to be done is not definitely fixed at the time of making the estimate.
- (iii) Contractee can ensure himself about the 'cost of contract' as he is empowered to examine the books and documents of the contractor to ascertain the veracity of the cost of contract.
- (c) In integrated accounting system cost and financial accounts are kept in the same set of books. Such a system will have to afford full information required for Costing as well as for Financial Accounts. In other words, information and data should be recorded in such a way so as to enable the firm to ascertain the cost (together with the necessary analysis) of each product, job, process, operation or any other identifiable activity. It also ensures the ascertainment of marginal cost, variances, abnormal losses and gains. In fact all information that management requires from a system of Costing for doing its work properly is made available. The integrated accounts give full information in such a manner so that the profit and loss account and the balance sheet can be prepared according to the requirements of law and the management maintains full control over the liabilities and assets of its business.

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Since, only one set of books are kept for both cost accounting and financial accounting purpose so there is no necessity of reconciliation of cost and financial accounts.

- (d) The impact of IT in cost accounting may include the followings:
 - (i) After the introduction of ERPs, different functional activities get integrated and as a consequence a single entry into the accounting system provides custom made reports for every purpose and saves an organisation from preparing different sets of documents. Reconciliation process of results of both cost and financial accounting systems become simpler and less sophisticated.
 - (ii) A move towards paperless environment can be seen where documents like Bill of Material, Material Requisition Note, Goods Received Note, labour utilisation report etc. are no longer required to be prepared in multiple copies, the related department can get e-copy from the system.
 - (iii) Information Technology with the help of internet (including intranet and extranet) helps in resource procurement and mobilisation. For example, production department can get materials from the stores without issuing material requisition note physically. Similarly, purchase orders can be initiated to the suppliers with the help of extranet. This enables an entity to shift towards Just-in-Time (JIT) approach of inventory management and production.
 - (iv) Cost information for a cost centre or cost object is ascertained with accuracy in timely manner. Each cost centre and cost object is codified and all related costs are assigned to the cost object or cost centre. This process automates the cost accumulation and ascertainment process. The cost information can be customised as per the requirement. For example, when an entity manufacture or provide services, it can know information job-wise, batch-wise, process-wise, cost centre wise etc.
 - (v) Uniformity in preparation of report, budgets and standards can be achieved with the help of IT. ERP software plays an important role in bringing uniformity irrespective of location, currency, language and regulations.
 - (vi) Cost and revenue variance reports are generated in real time basis which enables the management to take control measures immediately.
 - (vii) IT enables an entity to monitor and analyse each process of manufacturing or service activity closely to eliminate non value added activities.

The above are examples of few areas where Cost Accounting is done with the help of IT.

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