CMA TEST – 18 (Solution)		
Time Allowed: 3 hours		**Total Marks = 100 Marks**

Answer to Question No.: 1

(a) Material Turnover ratio =Raw material consumed/Average stock of raw material

Material X = ₹ 2,00,000/₹ 20,000 = 10 times

Material Y = ₹ 1,50,000/₹ 75,000 = 2 times

Raw material consumed = Opening stock + purchases - closing stock

Material X = 25,000 + 1,90,000 - 15,000 = ₹ 2,00,000

Material Y = 87,500 + 1,25,000 - 62,500 = ₹ 1,50,000

Average Stock = (Opening Stock + Closing Stock)/2

Material X = (25,000 + 15,000)/2 = ₹ 20,000

Material Y = (87,500 + 62,500)/2 = ₹ 75,000

Material holding period =365 days/Material turnover ratio

Material X = 360/10 = 36 days and Material Y = 360/2 = 180 days

Material X is fast moving because it is held in the store for lesser number of days as compared to Material

(b) Standard Time = 50 hours

Hourly Wage Rate = ₹ 15

Worker Garry

Assume actual hours $= x$

Hence, Time Wages (x hrs. × ₹ 15/hr.) $= 15x$

Bonus (Rowan Plan) $\frac{x}{50} \times (50 - x) \times 15 = \frac{3}{10} x(50 - x)$

Total Earnings $= 15x + \frac{3}{10} x(50 - x)$

We are given that, effective hourly rate = ₹ 20

$$\frac{15x + \frac{3}{10} x(50-x)}{x} = 20 \Rightarrow 15 + \frac{3}{10}(50 - x) = 20$$

Solving, we get $x = 33\frac{1}{3}$ hours.

Hence, actual hours taken by worker Garry are $33\frac{1}{3}$ hours.

Worker Larry

Time Wages ($33\frac{1}{3}$ hrs. × ₹ 15/hr.) = ₹ 500

(+) Bonus (Halsey Plan) $\frac{50}{100}\left(50-33\frac{1}{3}\right)$ hrs. × ₹ 15 / hr. = ₹ 125

Total Earnings = **₹ 625**

Effective hourly rate = $\frac{₹\ 625}{33\frac{1}{3}\text{hrs.}}$ = ₹ 18.75

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(c) Product Budget for the six months ending Dec., 2006

Particulars	July Units	Aug. Units	Sep. Units	Oct. Units	Nov. Units	Dec. Units	Total
Estimated sales	1,100	1,100	1,700	1,900	2,500	2,300	
(+) Closing stock	550	8,50	950	1,250	1,150	1,000	
	1,650	1,950	2,650	3,150	3,650	3,300	
(-) Opening stock	(550)	(550)	(850)	(950)	(1,250)	(1,150)	
Production	1,100	1,400	1,800	2,200	2,400	2,150	11,050

Production Cost Budget for the six months ending December, 2006

(Production: 11,050 units)	Amount (₹)
Direct material @ ₹ 10 for 11,050 units	1,10,500
Direct wages @ ₹ 4 for 11,050 units	44,200
Factory overhead @ ₹ 4 (₹ 88,000/22,000 units) for 11,050 units	44,200
Total Production Cost	1,98,900

(8,00,000 × 0.30) = ₹ 20,60,000

(d) Cost Sheet for the year ended 31st December

Particulars	Amount (₹)	Overhead Rates:-
Materials used	50,000	**% of works overhead to wages**
Production wages	40,000	$= \frac{\text{Works overhead}}{\text{Wages}} \times 100 = \frac{8,000}{40,000} \times 100 = 20\%$
Prime cost	90,000	
Works overhead	8,000	**% of office overhead to work cost**
Works cost	98,000	$= \frac{\text{Office overhead}}{\text{Work Costs}} \times 100 = \frac{4,900}{98,000} \times 100 = = 5\%$
Office overhead	4,900	
Total cost	1,02,900	

Estimated Cost Sheet for a Radio

Particulars	Amount (₹)
Materials	250
Wages	150
Prime cost	400
Works overhead: 20% of wages	30
Works cost	430
Office overhead: 5% of works cost	21.50
Total Cost	451.50
Add: Profit 20% on cost	90.30
Sale price	541.80

Answer to Question No.: 2

(a) Trading and Profit and Loss Account for the year ended on March 31, 2018

Particulars	Amount (₹)	Particulars	Amount (₹)
To Direct materials	3,55,000	By Sales (1,80,000 units)	16,20,000
To Direct wages	3,60,000	By Closing stock of finished goods	1,50,000
To Manufacturing expenses	2,45,000	(3,000 units)	
To Office and administration expenses	2,40,000	By Interest received	25,000
To Selling and distribution overheads	2,00,000		
To Donation and charity	20,000		
To Interest on debentures	48,000		
To Preliminary expenses written off	20,000		
To Provision for tax	75,000		
To Net profit	2,32,000		
	17,95,000		**17,95,000**

Cost Sheet

Particulars	Amount (₹)
Direct materials	3,55,000
Direct wages	3,60,000
Prime cost	7,15,000
Add: Manufacturing overheads (80% of direct wages)	2,88,000
Factory cost	10,03,000
Add: Production related administration overheads (25% of factory cost)	2,50,750
Cost of production (2,10,000 units)	12,53,750
Less: Closing stock of finished goods (₹ 12,53,750/2,10,000 units × 30,000 units)	(1,79,107)
Cost of goods sold (1,80,000 units)	10,74,643
Add: Selling overheads (₹ 1 per unit)	1,80,000
Cost of sales	12,54,643
Profit (**Bal. figure**)	3,65,357
Sales (1,80,000 units)	**16,20,000**

Reconciliation Statement

Particulars	+	−
Profit as per cost books	3,65,357	
Manufacturing overheads over-recovered in cost books (2,88,000 - 2,45,000)	43,000	
Office and administration overheads over-recovered in cost books	10,750	
Closing stock over-valued in cost books		29,107
Selling overheads under-recovered in cost books		20,000
Interest received recorded in financial books	25,000	
Donation and charity, Interest on debentures, Preliminary expenses written off and Provision for tax recorded in financial books		1,63,000
	4,44,107	**2,12,107**

Profit as per financial books = 4,44,107 - 2,12,107 = ₹ **2,32,000**

(b) **Total kms travelled by one bus**

In a day = 16 × 8 = 128 kms, in a month = 128 × 24 = 3,072 kms, in a year = 3,200 × 10 = 30,720 kms

Operating Cost Statement

Particulars	One Bus	25 Buses
Standing Charges		
1) Salary (25 drivers × 5,000 p.m.)	60,000	15,00,000
2) Cleaners (5 × 3,000 p.m.)	7,200	1,80,000
3) License Fee	2,300	57,500
4) Insurance	15,600	3,90,000
5) Repairs & Maintenance	16,400	4,10,000
6) Depreciation [(16,50,000 – 1,50,000)/16]	93,750	23,43,750
Total Standing Charges	**1,95,250**	**48,81,250**
Add: Diesel (₹ 18.50/10 kms. × 30,720 kms)	56,832	14,20,800
Total Cost	**2,52,082**	**63,02,050**

Cost to be recovered

Per bus per annum = ₹ 2,52,082 and Per bus per month = ₹ 21,006

Assume, cost recovery rate per student per month

Coming from distance upto 4 kms = 0.25 x

Coming from distance upto 8 kms = 0.50 x

Coming from distance upto 16 kms = x

Total students covered by one bus = 60 (senior) + 60 (junior) = 120. It includes

Coming from distance upto 4 kms = (18 students)(15%)

Coming from distance upto 8 kms = (36 students)(30%)

Coming from distance upto 16 kms = (66 students)(55%)

Hence, following equation can be formed:

(18 student)(0.25 x /student) + (36 students)(0.50 x /student) + (66 students)(x /student) = 21,006

Solving, we get x ₹ 237.36.

Therefore, cost recovery rate per student per month

Coming from distance upto 4 kms = 0.25 x = ₹ 59.34

Coming from distance upto 8 kms = 0.50 x = ₹ 118.68

Coming from distance upto 16 kms = x = ₹ 237.36

Answer to Question No.: 3

(a)

Material Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bal b/d (**Note 1**)	98,000	By WIP Leger Control A/c (**Bal. fig.**)	6,39,500
To General Ledger Adjustment A/c (**Note 2**)	6,42,000	By Bal c/d (**Note 3**)	1,00,500
	7,40,000		**7,40,000**

Note 1: - As compared to cost books, opening stock of raw material is under-valued in financial books to the extent of ₹ 2,500. Hence, this amount in cost books would have been ₹ 98,000 (95,500 + 2,500).

Note 2: - Amount of purchases in cost books and financial books are assumed to be equal.

Note 3: - As compared to cost books, closing stock of raw material is under-valued in financial books to the extent of ₹ 1,500. Hence, this amount in cost books would have been ₹ 1,00,500 (99,000 + 1,500).

WIP Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bal b/d (**Note 4**)	43,000	By Finished Goods Control A/c (**Bal. fig.**)	10,95,000
To Material Control A/c	6,39,500		
To Wages Control A/c (**Direct wages**)	2,22,000	By Bal c/d (**Note 6**)	54,500
To Production Overhead Control A/c (**Note 5**)	2,45,000		
	11,49,500		**11,49,500**

Note 4: - As compared to cost books, opening stock of WIP is over-valued in financial books to the extent of ₹ 2,000. Hence, this amount in cost books would have been ₹ 43,000 (45,000 - 2,000).

Note 5: - Productions overhead absorbed are assumed to be equal to the incurred amount due to absence of any information given in reconciliation statement.

Note 6: - As compared to cost books, closing stock of WIP is over-valued in financial books to the extent of ₹ 3,500. Hence, this amount in cost books would have been ₹ 54,500 (58,000 - 3,500).

Finished Goods Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bal b/d (**Note 7**)	75,000	By Cost of Sales A/c (**Bal. fig.**)	12,87,500
To WIP Control Account	10,95,000	By Bal c/d (**Note 9**)	81,000
To Administration Overhead Control A/c	1,98,500		
	13,68,500		**13,68,500**

Note 7: - As compared to cost books, opening stock of finished goods is over-valued in financial books to the extent of ₹ 3,000. Hence, this amount in cost books would have been ₹ 75,000 (78,000 - 3,000).

Note 8: - Administration overheads absorbed are assumed to equal to the incurred amount due to absence of any information given in reconciliation statement.

Note 9: - As compared to cost books, closing stock of finished goods is under-valued in financial books to the extent of ₹ 1,000. Hence, this amount in cost books would have been ₹ 81,000 (80,000 + 1,000).

Cost of Sales Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Finished Goods Control Account	12,87,500	By Costing Profit and Loss A/c	16,29,500
To Selling Overhead Control A/c (**Note 10**)	3,42,000	(**Transfer**)	
	16,29,000		**16,29,500**

Note 10: - Selling overheads absorbed are assumed to be equal to the incurred amount due to absence of any information given in reconciliation statement.

Costing Profit and Loss Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cost of Sales Account	16,29,500	By General Leger Adjustment A/c	17,80,000
To General Ledger Adjustment A/c (**Profit**)	1,50,500	(**Sales**)	
	17,80,000		**17,80,000**

(b) Contract Account for the period of 1.7.2011 to 31.3.2012

Particulars	Amount (₹)	Particulars	Amount (₹)
To Material Issued	7,74,300	By Material at site c/d	75,800
To Labour (10,79,000 + 1,02,500)	11,81,500	By Material Sold	10,000
To Engineers' salary (20,500×9 months)	1,84,500	By Profit and Loss A/c(Loss on Sale)	3,500
To Supervisors' salary (9,000×9× 3/4)	60,750	By Plant at site c/d	6,93,750
To Administration Expenses (4,60,600 – 10,000)	4,50,600	Less: $\left[\left(\frac{7,71,000-50,000}{7}\right)\times\frac{9}{12}\right]$	
To Plant sent to site	7,71,000	By Cost of Contract To Date c/d	26,39,600
	27,28,950		**10,87,500**
To Cost of Contract to date b/d	26,39,600	**By WIP**	
To Notional Profit c/d	2,70,300	a) Work certified	22,50,000
		b) Work uncertified	6,59,900
	29,09,900		**29,09,900**
To Profit & Loss Account	1,60,178	By Notional Profit b/d	2,70,300
To Reserve (WIP)	1,10,122		
	2,70,300		**2,70,300**

Computation of Work uncertified

Proportional of - Total works done = 2/3
- Work works done = 2/3
- Work uncertified = 2/3 – 1/2 = 1/6

Cost incurred to date on 2/3rd contract = ₹ 26,39,600

Hence, proportionate cost related to 1/6th uncertified works

$$= \frac{26,39,600}{\left(\frac{2}{3}\right)} \times \left(\frac{1}{6}\right) = ₹\ 6,59,600$$

Computation of estimated profit to be transferred to profit and loss account

$$= \frac{2}{3} \times \text{Notional Profit} \times \frac{\text{Work Certified}}{\text{Contract Price}} = \frac{2}{3} \times 2,70,300 \times \frac{20,00,000}{22,50,000} = ₹\ 1,60,178$$

Answer to Question No.:4

(a)

(1) Production Budget

Particulars	Product 1	Product 2	Product 3
Budgeted Sales	9,000 units	15,000 units	12,000 units
(+) Closing Stock	1,000 units	--	2,000 units
(-) Opening Stock	---	(5,000 units)	(4,000 units)
Budgeted Production	10,000 units	10,000 units	10,000 units

(2) Direct Labour Hours Budget

Operation	Product	Units	Time/Unit	Total Time	
I	1	10,000	18 minutes	3,000 hours	
	2	10,000	42 minutes	7,000 hours	
	3	10,000	30 minutes	5,000 hours	**15,000 hours**
II	1	10,000	---	---	
	2	10,000	12 minutes	2,000 hours	
	3	10,000	24 minutes	4,000 hours	**6,000 hours**
III	1	10,000	9 minutes	1,500 hours	
	2	10,000	6 minutes	1,000 hours	
	3	10,000	---	---	**2,500 hours**

(3) Available Labour Hours per worker per quarter

Total number of hours in a quarter (13 weeks × 6 days × 8 hours)	624 hours
(-) Hours lost due to leave, etc.	(124 hours)
Net available hours	500 hours

(4) Number of workers required

Operation 1 = 15,000 hours/ 500 hours per worker = 30 workers
Operation 2 = 6,000 hours/ 500 hours per worker = 12 workers
Operation 3 = 2,500 hours/ 500 hours per worker = 5 workers **47 workers**

(5) Direct Labour Cost Budget

Operation	Labour Hours	Rate /Hour	Labour Cost
I	15,000	₹ 16	₹ 2,40,000
II	6,000	₹ 20	₹ 1,20,000
III	2,500	₹ 24	₹ 60,000
	23,500		**₹ 4,20,000**

(b) **Evaluation of existing situation**

Particulars		Amount (₹)
Selling Price per unit		40
(-) Variable cost per unit		
Material	16	
Conversion cost	12	
Dealer's Margin	4	(32)
Contribution per unit		8
Total contribution (90,000 units × ₹ 8 per unit)		7,20,000
(-) Fixed Cost		(5,00,000)
Profit		2,20,000

(a) If SP per unit reduces by 5%, it becomes ₹ 40 less 5% i.e. ₹ 38.

New Variable cost per unit is:

Materials	₹ 16
Conversion Cost	₹ 12
Dealer's Margin (10% of Selling Price)	₹ 3.80
	₹ 31.80

Contribution per unit = Selling Price per unit – Variable Cost per unit = ₹ 38 - ₹ 31.80 = ₹ 6.20

Hence, units to be sold to maintain the present level of profit is computed below: -

$$= \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{Contribution per unit}} = \frac{₹\,5,00,000 + ₹\,2,20,000}{₹\,6.20} = 1,16,129 \text{ units.}$$

(b) At present, the dealer's margin is 10% of selling price. If it is increased by 25%, it will become 12.5% of selling price, *i.e.* 12.5% of ₹ 40 = ₹ 5. **Hence**, Variable cost becomes: -

Materials	₹ 16	
Conversion Cost	₹ 12	
Dealer's Margin	₹ 5	**₹ 33**

Contribution per unit = SP / Unit – VC / Unit = ₹ 40 – ₹ 33 = ₹ 7

Units to be sold to maintain the present profit is computed below: -

$$\frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{Contribution per unit}} = \frac{₹\,5,00,000 + ₹\,2,20,000}{₹\,7} = 1,02,857 \text{ units.}$$

Answer to Question No.: 5

(a) **Process A Account**

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Opening WIP (80,000 + 15,000 + 45,000)	2,000	1,40,000	By Normal loss (5%)(₹ 20)	2,000	40,000
			By Abnormal loss	1,000	72,000
To Material	38,000	14,80,000	By Process B A/c	35,000	28,00,000
To Labour		3,59,000	By Closing WIP	2,000	1,44,000
To Overheads		10,77,000			
	40,000	**30,56,000**		**40,000**	**30,56,000**

Statement of equivalent production

Particulars	Units out	Materials		Labour and Overhead	
		%	Quantity	%	Quantity
Units completed	35,000	100	35,000	100	35,000
Normal loss	2,000	–	–	–	–
Abnormal loss	1,000	100	1,000	80	800
Closing WIP	2,000	100	2,000	80	1,600
			38,000		**37,400**

Statement of cost per unit

Type of cost	Materials (₹)	Labour and Overhead (₹)
Cost already incurred	1,40,000	15,000 + 45,000 = 60,000
Cost now incurred	14,80,000	3,59,000+ 10,77,000 = 14,36,000
(-) Normal Loss	40,000	
Total	**15,20,000**	**14,90,000**
Equivalent units	38,000	37,400
Average cost per unit	**40**	**40**

Statement of value of Equivalent production

Particulars	Type of cost	Equivalent units	Cost per unit	Cost	Total
Units completed	Materials	35,000	40	1,40,000	
	Labour and Overheads	35,000	40	1,40,000	**2,80,000**
Abnormal loss	Materials	1,000	40	40,000	
	Labour and Overheads	800	40	32,000	**72,000**
Closing WIP	Materials	2,000	40	80,000	
	Labour and Overheads	1,600	40	64,000	**1,44,000**

Normal Loss Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process A A/c	2,000	40,000	By Bank A/c	2,000	40,000
	2,000	**40,000**		**2,000**	**40,000**

Abnormal Gain Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process A A/c	1,000	72,000	By Bank A/c	1,000	20,000
			By Costing P & L A/c		52,000
	1,000	**72,000**		**1,000**	**72,000**

(b) **Primary Distribution Summary**

Particulars	Production Department			Service Department	
	X	Y	Z	A	B
Indirect materials	20,000	30,000	45,000	25,000	5,000
Indirect wages	45,000	50,000	70,000	60,000	35,000
Superintendents' salary	---	---	96,000	---	---
Fuel and heat (Radiators sections)(2:4:6:5:3)	1,500	3,000	4,500	3,750	2,250
Power (Kilowatts hours)(35:40:30:15:Nil)	52,500	60,000	45,000	22,500	---
Rent and rates [Area (sq. ft.)] (44:40:30:24:12)	44,000	40,000	30,000	24,000	12,000
Insurance (Capital value)(4:6:5:1:2)	4,000	6,000	5,000	1,000	2,000
Meal charges (No. of employees)(6:7:12:3:2)	12,000	14,000	24,000	6,000	4,000
Depreciation (Capital value)(4:6:5:1:2)	60,000	90,000	75,000	15,000	30,000
	2,39,000	**2,93,000**	**3,94,500**	**1,57,250**	**90,250**

Secondary Distribution Summary

Particulars	Production Department			Service Department	
	X	Y	Z	A	B
As per primary distribution	**2,39,000**	**2,93,000**	**3,94,500**	**1,57,250**	**90,250**
Expenses of Department A to be absorbed by Department X, Y and Z (3:3:2:Nil:2)	50,900	50,900	33,934	(1,69,668)	33,934
Expenses of Department B to be absorbed by Department X, Y and Z (25:40:25:10:Nil)	31,046	49,674	31,046	12,418	(1,24,184)
	3,20,946	**3,93,574**	**4,59,480**	**---**	**---**

Assume, total overhead of**: -** Department A = x and Department B = y

Hence, $x = 1{,}57{,}250 + \frac{10}{100}y$; $y = 90{,}250 + \frac{20}{100}x \Rightarrow x = 1{,}57{,}250 + \frac{10}{100}\left(90{,}250 + \frac{20x}{100}\right)$

Solving, we get = x = ₹ 1,69,668, y = ₹ 1,24,184

Answer to Question No.: 6

(a) **Job Costing V/s Process Costing**

Job Costing	Process Costing
1. Job is performed to meet specific order requirements, which is different from other jobs.	**1.** Process means production segregated into various stages where output of one stage is input to the next stage and output of last stage is final output.
2. Job is a cost center where costs are ascertained for each job separately which is to be determined after completion of job.	**2.** Each process is a separate cost centre where costs are ascertained for each process separately which is to be determined at the end of period.
3. There are usually no transfers from one job to another unless there is some surplus work.	**3.** In Process costing, the essential feature is transfer of output from one process to another.
4. There may or may not be work-in-progress at the end of accounting period.	**4.** There is usually some work-in-progress at the beginning as well as the end of accounting period.

(b) **Traditional Method V/s ABC**

Traditional Method	ABC
1. Overheads are related to various cost centers (Departments).	**1.** Overheads are related to activities and grouped into cost pool.
2. Cost are related to cost centers and hence are not realistic in context of recovery from customer.	**2.** Cost are related to activities and hence are more realistic in the context of recovery from customers.
3. Blanket Recovery Rates are establishes for the business as a whole.	**3.** Activity – wise cost drivers are determined and as such, separate recovery rates are established.
4. Costs are assigned to cost units , i.e., a product , a service, a work order etc.	**4.** Costs are assigned to cost objects i.e., customer service segments, distribution channels, etc.
5. Cost Centers can't be eliminated. Hence, not suitable for cost control.	**5.** Essential activities can be simplified and unnecessary activities can be eliminated very much suitable for cost control.

(c) Centralized Purchasing and Decentralized Purchasing

1) **CENTRALISED PURCHASING:-** Centralized purchasing is the system where one common purchasing department manages the purchasing function of all the departments of the organization. Although this system enables the organization to place the order in large quantities, it may slow down the procurement process.
2) **ADVATAGES OF CENTRALISED PURCHASING:**
   - **a)** Helps in availing quantity discount and cash discount. Hence, cost is reduced.
   - **b)** Prompt reporting of scrap, obsolete stock and storage losses.
3) **DECENTRALISED PURCHASING:-** Decentralized purchasing is a system where purchasing of material is made by various departments independently as per their own requirements. It helps to purchase the materials immediately in case of urgent needs.
4) **ADVATAGES OF DECENTRALISED PURCHASING:-**
   - **a)** Local supply sources are developed which reduces the transport cost.
   - **b)** Different departments are made accountable and responsible in relation to their own purchase.
5) **WHICH SYSTEM IS BEST? :-**It is to be decided by the organization keeping in mind the following factors:-
   - **a)** Nature and Quantity and quality of material to be purchased.
   - **b)** Location of purchase Function in business.

(d) Benefits of Study of Marginal Costing

1. Marginal costing is very effective in cost control. It is necessary to segregate various expenses in to fixed and variable parts. Such behavior of cost is also compared with past data. As such, the management is able to control if there is variance as compared to past period or standard cost.
2. It is helpful in taking the decision regarding price fixation. Normally the price is to be fixed above total cost for earning some profit. But, under certain circumstances, price can be fixed at below total cost but above variable cost because fixed cost becomes irrelevant in the decision - making process.
3. It is helpful in deciding the most suitable sales mix for obtaining the maximum profit. If the situation of key factor or limiting factor is prevailing, the product which yields highest contribution per unit of key factor is considered most profitable.
4. In case of “Make or Buy decisions”, the decision is to be taken by comparing the supplier’s price with the variable manufacturing cost. Here, fixed cost is to be ignored. The study of Marginal Costing is helpful in taking such decisions.
5. If new product has been developed & management is faced with the problem of deciding whether to employ machine or labour oriented activities, the management should select such method which yields maximum contribution.