Ch- 2 Activity Based Management and Just in Time (JIT)
[Study Material - Module 4]

ILLUSTRATION 1

ABC Ltd is engaged in the production of three types of cookies: Ginger Honey, Blue Berry & Hot chocolate. The current annual sale of the Company is 50000 units, 20000 units & 60000 units at the rate of `.30, `.25 & `.20 each respectively. The annual operating capacity of these 3 products is 60500, 24200 & 72600 units.

The demand is price sensitive. 10% increase in demand is anticipated for decline of every rupee in sale price. The Company targets a profit of 20% on sales.

The management decides to switch to ABC. The identified activities and cost driver rates are given below:

Sr	Activity	Cost Rate
1	Ordering Cost	`.800 per Order
2	Deliver Cost	`.700 per delivery
3	Shelf Stocking	`.199 per hour
4	Customer Support	`.1.10 per unit sold

Product wise other information at 100% capacity utilization level is given below:

Sr.	Particulars	Ginger Honey	Blue Berry	Hot chocolate
1	Direct Material Per Unit (`.)	10	8	7
2	Direct Labour Per Unit (`.)	7	6	5
3	No. of Purchase Orders	35	30	15
4	No. of Deliveries	112	66	48
5	Shelf Stocking Hours	130	150	160

Under Traditional Costing System, customer support cost is charged at 30% of the prime cost.

Required:

1. Work out the reduced selling price to achieve 100% capacity utilization
2. Work out the Profit of all products at maximum capacity utilization using Traditional Costing method.

3. Work out the Profit of all products at maximum capacity utilization using ABC.

Solution:

1. Computation of Selling Price to achieve 100% Capacity Utilisation

Ginger Honey		Blue Berry		Hot chocolate	
Selling Price (`.) (-) `1	Quantity (Nos.) (+) 10%	Selling Price (`.) (-) `1	Quantity (Nos.) (+) 10%	Selling Price (`.) (-) `1	Quantity (Nos.) (+) 10%
30	50000	25	20000	20	60000
29	55000	24	22000	19	66000
28	60500	23	24200	18	72600

2. Computation of Cost and Profits at 100% Capacity Utilisation in Traditional Cost Method

Particulars	Ginger Honey	Blue Berry	Hot chocolate
Production Quantity (Nos.)	60500	24200	72600
Selling Price (`. per unit)	28.00	23.00	18.00
Direct Material (`. per unit)	10.00	8.00	7.00
Direct Labour (`. per unit)	7.00	6.00	5.00
Prime Cost (`. per unit)	17.00	14.00	12.00
Customer Support Cost (30% of Prime Cost) (`. per unit)	5.10	4.20	3.60
Total Cost (`. per unit)	22.10	18.20	15.60
Total Cost at 100% Capacity Utilisation (`. Lakhs)	13.37	4.40	11.33
Total Sales at 100% Capacity Utilisation (`. Lakhs)	16.94	5.566	13.07
Total Profit at 100% Capacity Utilisation (`. Lakhs)	3.57	1.166	1.74
Profit % to Sales	21.07%	20.95%	13.31%

1. Computation of Cost and Profits at 100% Capacity Utilisation in ABC Method

Particulars	Ginger Honey	Blue Berry	Hot chocolate
Production Quantity (Nos.)	60500	24200	72600

Selling Price (`. per unit)	28.00	23.00	18.00
Direct Material (`. per unit)	10.00	8.00	7.00
Direct Labour (`. per unit)	7.00	6.00	5.00
Prime Cost (`. per unit)	17.00	14.00	12.00
Total Prime Cost (`. Lakhs)	10.285	3.388	8.712
Overheads (`. Lakhs)			
Cost of Purchase Order @`.800 each order	800 × 35 = 0.28	800 × 30 = 0.24	800 × 15 = 0.12
Cost of Delivery @`.700 each Delivery	700 × 112 = 0.784	700 × 66 = 0.462	700 × 48 = 0.336
Shelf Stocking @`.199 per hour	199 × 130 = 0.259	199 × 150 = 0.30	199 × 160 = 0.32
Customer Support @`.1.10 per unit sold	1.10 × 60500 = 0.666	1.10 × 24200 = 0.266	1.10 × 72600 = 0.799
Total Overheads	1.99	1.268	1.575
Total Cost at 100% Capacity Utilisation (`. Lakhs)	12.275	4.656	10.29
Total Sales at 100% Capacity Utilisation (`. Lakhs)	16.94	5.566	13.07
Total Profit at 100% Capacity Utilisation (`. Lakhs)	4.665	0.91	2.78
Profit % to Sales	27.54%	16.35%	21.27%

ILLUSTRATION 2:

Live Pure Limited has decided to analyse the profitability of its 5 new customers. It trades bottled water, per case purchase price is `.90 and listed Selling Price is `.108. The data pertaining to 5 customers is as below:

Sr	Particulars	Andrew	Steve	Chris	Donald	Elvis
1	Sales (No. of Cases)	4680	19688	136800	71550	8775
Sr	**Particulars**	**Andrew**	**Steve**	**Chris**	**Donald**	**Elvis**

2	Actual Selling Price	108	106.20	99	104.40	97.20
3	No. of Purchase Orders	15	25	30	25	30
4	No. of Customer Visits	2	3	6	2	3
5	No. of Deliveries	10	30	60	40	20
6	Distance Travelled per Delivery (Kms)	20	6	5	10	30
7	No. of Expedited Deliveries	0	0	0	0	1

Activities and their Cost Drivers rates are given below:

Sr	Activity	Cost Driver Rate
1	Order Taking	`.750 per Purchase Order
2	Customer Visits	`.600 per customer visit
3	Deliveries	`.5.75 per km travelled
4	Product Handling	`.3.75 per case sold
5	Expediting Deliveries	`.2250 per expedited delivery

Required:

1. Compute customer wise profitability using ABC.
2. Considering supply constraint of 235000 cases, calculate the number of cases sold to each customer. The Company can consider to drop one customer completely. Give your justification.

Solution:

1. Computation of Customer Wise Profitability

Sr	Particulars	Andrew	Steve	Chris	Donald	Elvis
1	Sales (No. of Cases)	4680	19688	136800	71550	8775
2	Actual Selling Price per unit	108	106.20	99	104.40	97.20
3	Actual Revenue (`.)	505440	2090866	13543200	7469820	852930
4	Cost of Purchases @`.90 per unit (`.)	421200	1771920	12312000	6439500	789750
Sr	**Particulars**	**Andrew**	**Steve**	**Chris**	**Donald**	**Elvis**
5	Gross Margin (`.) (3-4)	84240	318946	1231200	1030320	63180

6	Operating Expenses (`.)					
a	Orders Tracking @`750 per order	750×15 =11250	750× 25 =18750	750× 30 =22500	750× 25 =18750	750× 30 =22500
b	Customer Visits @`600 per visit	600×2 =1200	600× 3 =1800	600× 6 =3600	600× 2 =1200	600× 3 =1800
c	Delivery @`.5.75 per Km	5.75×10×20 =1150	5.75× 30×6 =1035	5.75× 60×5 =1725	5.75×40×10 =2300	5.75×20×30 =3450
d	Product Handling @`.3.75 per case sold	3.75×4680 = 17550	3.75× 19688 = 73830	3.75×136800 = 513000	3.75× 71550 = 268313	3.75× 8775 = 32906
e	Expedited Deliveries @`.2250 each					2250
f	Total Operating Expenses (a…e)	31150	95415	540825	290563	62906
7	Profit (5-6)	53090	223531	690375	739757	274
8	% of Profit to Revenue	10.50	10.69	5.10	9.90	0.03
9	% of Total sales quantity	1.94	8.15	56.65	29.63	3.63

1. Dropping of customer should be a last resort available to the business. If any supply constraints are emerging in near future, the decision to drop a customer can be taken on 2 grounds
   a. Profit % earned on sale to a particular customer
   b. Future prospects of business growth and profitability increase for a particular customer

   Since Mr. Elvis is giving 0.03% of profit on sale, and taking only 3.63% of total quantity. So, he can be considered to be dropped.

ILLUSTRATION 3 (JIT)

Lintas Ltd. Wants to implement a JIT program, with the impact on 3 types of stocks as given below.,

Sr	Particulars	Present Situation	Proposed
1	Sales Value	`.1200 Lakhs	Same at Present
Sr	**Particulars**	**Present Situation**	**Proposed**

2	Cost to Sales Value % Raw Material Conversion Cost	 40 30	 44 32
3	Stock Holding Raw Material WIP Finished Goods	 1 month 0.5 month 0.5 month	 25% less than Existing 50% less than Existing 40% less than Existing
4	Completion of WIP % Materials Conversion Cost	 90 75	 90 75
5	Fixed Cost for Raw Material Fixed Variable	 `.2.00 Lakhs ` 0.09 per Re of Stock held	 15% less than existing ` 0.05 per Re of Stock held
6	Fixed Cost for WIP Fixed Variable	 `.3.00 Lakhs ` 0.04 per Re of Stock held	 20% less than existing ` 0.02 per Re of Stock held
7	Fixed Cost for Finished Goods Fixed Variable	 `.2.50 Lakhs ` 0.02 per Re of Stock held	 40% less than existing ` 0.01 per Re of Stock held

Financial Charges 18% on Working capital

Find out the cost impact of implementation of JIT.

Solution:

A. Computation of Stocks

Sr	Particulars	Present Situation	Proposed
1	Sales Value	`.1200 Lakhs	`.1200 Lakhs
2	Raw Material Consumption	`.480 Lakhs	`.528 Lakhs
3	Conversion Expenses	`.360 Lakhs	`.384 Lakhs
4	Raw Material Stock	1 month = `. 480/12 × 1 = `.40 Lakhs	0.75 month = `. 528/12 × 0.75 = `.33 Lakhs

Sr	Particulars	Present Situation	Proposed
5	WIP Stocks	(480 × 90%+360 × 75%)/12 × 0.50 = `.29.25 Lakhs	(528 × 90%+ 384 × 75%)/ 12 × 0.25 = `. 15.90 Lakhs
6	Finished Goods Stocks	(480 + 360) /12 × 0.50 = `. 35 Lakhs	(528 + 384) /12 × 0.30 = `.22.80 Lakhs
7	Total Investment in Stocks	`.104.25 Lakhs	`.71.70 Lakhs

A. Computation of Stock holding Costs (` Lakhs)

Sr	Particulars	Present Situation	Proposed
1	Fixed Costs		
	Raw Material	`.2.00 Lakhs	`.1.70 Lakhs
	WIP	`.3.00 Lakhs	`.2.40 Lakhs
	Finished Goods	`.2.50 Lakhs	`.1.50 Lakhs
2	Variable Costs		
	Raw Material	40 × 0.09 = `.3.60 Lakhs	33 × 0.05 = `.1.65 Lakhs
	WIP	29.25 × 0.04 = `.1.17 Lakhs	15.90 × 0.02 = `.0.32 Lakhs
	Finished Goods	35 × 0.02 = `.0.70 Lakhs	22.80 × 0.01 = `.0.23 Lakhs
3	Interest Cost	104.25 × 18% = `.18.77 Lakhs	71.70 × 18% = `.12.91 Lakhs
4	Total Stock Holding Costs	`.31.74 Lakhs	`.20.71 Lakhs

Total impact on cost after implementing JIT is reduction in stock holding cost is `.11.03 Lakhs. So the Company should implement JIT.

ILLUSTRATION 4:
BACK FLUSH ACCOUNTING

X Ltd. follows JIT System, it had following transactions for December 2024:

i. On 2nd December 2024: Raw material purchases `.5,00,000
ii. Direct Labour Cost `. 72,000
iii. Actual overhead costs `. 6,00,000
iv. Conversion costs applied `. 6,56,000

All materials purchased were consumed, production was complete with in month. No opening and

closing stock of Finished goods. The difference between actual and applied costs is computed. Pass necessary entries in traditional journal and Back flush Journal

Solution:

In the Books of X Ltd Journal Entries (Traditional)

Date	Particulars		Debit	Credit
02.12.2024	Materials Account	Dr	5,00,000	
	To Accounts Payable			5,00,000
	(Being credit purchase of Raw material)			
02.12.2024	WIP Account	Dr	5,00,000	
	Raw Materials			5,00,000
	(Being materials issued to production)			
31.12.2024	WIP Account	Dr	72,000	
	Direct Wages Account			72,000
	(Being direct wages cost incurred for the month)			
31.12.2024	Overheads control Account	Dr	600,000	
	To Accounts Payable			6,00,000
	(Being overheads cost incurred for the month)			
31.12.2024	WIP Account	Dr	5,84,000	
	To Overheads control Account			5,84,000
	(Being Application of Overheads)			
31.12.2024	Finished Goods Account	Dr	11,56,000	
	To WIP Account			11,56,000
	(Being completion of goods)			
31.12.2024	Cost of Goods Sold Account	Dr	11,56,000	
	To Finished Goods Account			11,56,000
	(Being Cost of finished goods sold transferred)			
31.12.2024	To Overheads Control Account	Dr	16,000	

				16,000
	(Being variance recognized)			

In the Books of X Ltd

Journal Entries (Backflush)

Date	Particulars		Debit	Credit
02.12.2024	Raw Material in Process Account	Dr	5,00,000	
	To Accounts Payable			5,00,000
	(Being credit purchase of Raw material)			
02.12.2024	Conversion Cost control Account	Dr	6,72,000	
	To Direct Wages Payable Account			72,000
	To Accounts Payable			6,00,000
	(Being Wages & overheads cost incurred)			
31.12.2024	Finished Goods Account	Dr	11,56,000	
	To Raw Material in Process Account			5,00,000
	To Conversion Cost Accounts			6,56,000
	(Being Completion of Goods)			
31.12.2024	Cost of Goods Sold Account	Dr	11,56,000	
	To Finished Goods Account			11,56,000
	(Being Cost of finished goods sold transferred)			
31.12.2024	Cost of Goods Sold Account	Dr	16,000	
	To Conversion Cost Account			16,000
	(Being variance recognized)			

Working Note: Difference between actual conversion cost & Applied Conversion cost

Actual Conversion cost = Labour Cost + Overheads cost = 72000 + 600000 = 672000

Actual conversion cost – Applied conversion cost = 672000 - 656000 =16000

ILLUSTRATION 5:

Data below relates to 2 products manufactured by Rely Ltd. :

Sr	Particulars	Product Alpha	Product Beta
1	Units Produced	40	40
2	Material Moves per product unit	12	28
3	Direct Labour Hours per unit	1740	1740

Budgeted material handling cost: `.348000

i. Determine material handling cost per unit of Product Alpha & Beta using volume based allocation method and ABC method

ii. Interpret the results in both computations of (i) above.

Solution:

i. Computation of Material Handling Cost

a. Volume based allocation method using Direct Labour Hours

Budgeted Direct Labour Hours = 40 × 1740 × 2 = 139200

Direct Labour Hour Rate = Budgeted Overheads/Budgeted Direct Labour Hours

= 348000/139200 = `.2.50 per Hour

Sr	Particulars	Product Alpha	Product Beta
1	Total Direct Hours Consumed Per Unit	1740	1740
2	Labour Rate Per Hour (`.)	2.50	2.50
3	Material Handling Cost Per Unit (`)	4350	4350

b. Activity based allocation method using Cost Driver

Cost driver for Material handling cost is Material moves per unit of product

Cost Driver Rate = Budgeted Overheads/Budgeted Material moves

= 348000/(12 × 40 + 28 × 40) = `.217.50 per Movement

Sr	Particulars	Product Alpha	Product Beta
1	Total Material Movements Per Unit	12	28
2	Cost Rate Per Hour (`.)	217.50	217.50
3	Material Handling Cost Per Unit (`)	2610	6090

ii. As we see that number of material movement is different in both the products, so its absorption rate needs to be proportionate. This does not reflect under traditional method of overheads absorption i.e. labour hour rate, as material handing cost absorbed per unit is same. Where as

in ABC method material handling cost per unit is absorbed according to number of movements a product needs. This method is more justified to be used in such situations.

ILLUSTRATION 6:

Activity Centers and their related costs for a period are given below:

Sr	Particulars	Amount (`)
1	Material Handling Cost	8000

Sr	Particulars	Amount (`)
2	Machining Cost	5000
3	Assembling Cost	4800
4	Inspection Cost	1400

Other details are as follows:

Sr	Particulars	Numbers
1	Material Parts used	80000
2	Machine Hours utilised	150
3	Assembling Parts used	8000
4	Finished units produced	1000

Calculate Cost driver rates

i. Compute the cost of a component 'Delta' that uses 8 units of raw material costing `.200, remains 15 minutes on machines, uses 8 assembly parts that cost `.100, utilities consumed `.10 per unit.

Solution:

i. Computation of Cost Driver Rate:

Sr	Overheads Cost	Cost Driver	Cost Driver Rate (`)
1	Material Handling Cost	Material Parts used	8000/80000=0.10
2	Machining Cost	Machine Hours utilised	5000/150=33.33
3	Assembling Cost	Assembling Parts used	4800/8000=0.60
4	Inspection Cost	Finished units produced	1400/1000=1.40

ii. Per Unit Cost of Product Delta

Sr	Particulars	Amount (`.)
1	Material Cost	200.00
	Assembling Material Cost	100.00
	Utilities Consumed	10.00
	Material Handling Cost (8 × 0.10)	0.80
2	Machine Hours Cost (1/4×33.33)	8.33
3	Assembling Cost (8 × 0.60)	4.80
Sr	Particulars	Amount (`.)
4	Inspection Cost (1 × 1.40)	1.40
5	Total Cost per Unit	325.33

ILLUSTRATION 7:

A firm of Cost Accountants offers 3 kinds of services viz. Audit, Taxation and Management Consultancy. Each service is a separate profit segment and is charged on billable hours @`.500 per hour. For the year ending on 31st March 2025, the firm estimates the following direct and indirect expenses:

Sr	Expense Head	Amount (`.)	Total Amount (`.)
A	**Direct Costs**		
i	Audit	100.00	
ii	Taxation	100.00	
iii	Management Consultancy	50.00	250.00
B	**Indirect Costs**		
i	Planning & Review	7.50	
ii	Computer Processing	7.20	
iii	Professional Salaries	5.60	
iv	Professional Development	1.80	
v	Programming Costs	8.00	

vi	Office Expenses	4.90	
vii	Administrative Expenses	15.00	50.00
C	**Total**		**300.00**

Following additional information is available:

Sr	Particulars	Audit	Taxation	Management Consultancy
1	Billable hours	55000	35000	10000
2	EDP hours	5000	2500	500
3	Professional (Nos.)	30	16	10
4	Professional Development (`)	57500	62500	60000
Sr	**Particulars**	**Audit**	**Taxation**	**Management Consultancy**
5	Programming hours	1250	500	2250
6	Space Occupied (Sft)	8000	4000	2000
7	No. of Clients	150	250	100

Till March 2024, firm was operating on traditional method, now they want to switch over to ABC method. You are required to

i. Work out cost driver rates & allocate in 3 segments

ii. Prepare comparative profitability statement in traditional method and on the basis of ABC.

iii. Give your opinion to improve the billable charges on the basis of ABC

Solution:

i. Computation of Cost Driver Rates & its Segment wise allocation

Sr	Expense Head	Cost Driver	Cost Driver Rate	Audit	Taxation	Management Consultancy	Total
			(`.)	**`. Lakhs**			
1	Planning & Review	Billable hours	7.50	4.125	2.625	0.750	7.50
2	Computer Processing	EDP hours	90.00	4.500	2.25	0.45	7.20

3	Professional Salaries	Professional (Nos.)	10000	3.00	1.60	1.00	5.60
4	Professional Development	Given (`)		0.575	0.625	0.600	1.80
5	Programming Costs	Programming hours	200.00	2.50	1.00	4.50	8.00
6	Office Expenses	Space Occupied (Sft)	35.00	2.80	1.40	0.70	4.90
7	Administrative Expenses	No. of Clients	3000.00	4.50	7.50	3.00	15.00
8	Total			22.00	17.00	11.00	50

i. Comparative Profitability Statement

Sr	**Particulars**	**Conventional Method**			**ABC Method**		
		Audit	**Taxation**	**Management Consultancy**	**Audit**	**Taxation**	**Management Consultancy**
1	Revenue	275.00	175.00	50.00	275.00	175.00	50.00
2	Direct Costs	100.00	100.00	50.00	100.00	100.00	50.00
3	Overheads	27.50	17.50	5.00	22.00	17.00	11.00
4	Profit	147.50	57.50	(5.00)	153.00	58.00	(11.00)

ii. Opinion on Billable Charges:

Under the ABC method total cost of 3 segments is `.122 lakhs, 117 Lakhs & 61 Lakhs respectively. Hence the billable charge should be revised accordingly. Existing margin of 40% of revenue to be maintained. Revised charges may be worked out as follows:

Sr	**Particulars**	**Audit**	**Taxation**	**Management Consultancy**
1	Total Cost	122.00	117.00	61.00
2	Margin	81.33	78.00	40.67
3	Target Revenue	203.33	195.00	101.67
4	Billable Hours	55000	35000	10000
5	Rate Per Hour	370.00	557.00	1017.00

Revised working suggests that charges for audit may be revised downward and management

consultancy charges to be increased.

ILLUSTRATION 8:

THROUGHPUT ACCOUNTING

CAT Co. makes a product using three machines – X, Y and Z. The per week capacity of each machine is 800, 600 & 500 units respectively.

The demand for the product is 1,000 units per week. For every additional unit sold per week, profit increases by `.50,000. CAT Co. is considering the following possible purchases (they are not mutually exclusive):

Purchase 1 Replace machine X with a newer model. This will increase capacity to 1,100 units per week and costs `.60 Lakhs.

Purchase 2 Invest in a second machine Y, increasing capacity by 550 units per week. The cost of this machine would be `.68 Lakhs.

Required:

Which is CAT Co's best course of action under throughput accounting?

Solution:

Bottleneck resource in order of preference is firstly machine 'Z', secondly machine 'Y' and lastly machine 'X' because the no. of units are in that order in the existing capacity.

Particulars	X	Y	Z	Demand
Current capacity per week	800	600	500*	1,000
Buy Z	800	600*	1,050	1,000
Buy Z & Y	800*	1,150	1,050	1,000
Buy Z, Y & X	1,100	1,150	1,050	1,000*

* = bottleneck resource

All the three machines, to be purchased, in the above order to meet the existing demand.

ILLUSTRATION 9:

Super Industries Ltd. produces three products, X, Y and Z. The capacity of its plant is restricted by process alpha. Process 'Alpha' is expected to be operational for eight hours per day and can produce 1,200 units of X per hour, 1,500 units of Y per hour, and 600 units of Z per hour. Selling

prices and material costs for each product are as follows

Product	Selling price `. per unit	Material cost `. per unit	Throughput contribution `. per unit
X	150	80	70
Y	120	40	80
Z	300	100	200

Conversion costs are `. 720,000 per day.

Required:

(i) Calculate the profit per day if daily output achieved is 6,000 units of X, 4,500 units of Y and 1,200 units of Z.

(ii) Calculate the TA ratio for each product.

In the absence of demand restrictions for the three products, advise the management of Super Industries Ltd on the optimal production plan.

Solution :

(a) Profit per day = throughput contribution – conversion cost

= [(`.70 × 6,000) + (`.80 × 4,500) + (`.200 × 1,200)] – `.7,20,000

= `.3,00,000

(b) TA ratio = throughput contribution per factory hour / conversion cost per factory hour

Conversion cost per factory hour = `720,000 / 8 = `90,000

Product	Throughput contribution per factory hour	Cost per factory hour (`.)	TA ratio
X	`.70 × 1,200 = `.84,000	90,000	0.93
Y	`.80 × 1,500 = `.120,000	90,000	1.33
Z	`.200 × 600 = `.120,000	90,000	1.33

(c) An attempt should be made to remove the restriction on output caused by process Alpha's capacity. This will probably result in another bottleneck emerging elsewhere. The extra capacity required to remove the restriction could be obtained by working overtime, making process improvements or changes in product specifications. Until the volume of throughput can be increased, output should be concentrated upon products Y and Z (greatest TA ratios), unless there are good marketing reasons for continuing the current production mix.

Product X is losing money every time it is produced so, unless there are good reasons why it is

being produced, for example it has only just been introduced and is expected to become more profitable, Super Industries Ltd should consider ceasing production of X.

ILLUSTRATION 10

A factory has a key resource (bottleneck) of Facility A which is available for 31,300 minutes per week. Budgeted factory costs and data on two products, X and Y, are shown below:

Product	Selling Price `. /Unit	Material Cost `. /Unit	Time in Facility A
X	50	35.00	5 minutes
Y	50	32.50	10 minutes

Budgeted factory costs per week: in `.

Direct labour	25,000
Indirect labour	12,500
Power	1,750
Depreciation	22,500
Space costs	8,000
Engineering	3,500
Administration	5,000

Actual production during the last week is 4,750 units of product X and 650 units of product Y. Actual factory cost was `.78,250. Calculate:

(i) Total budgeted factory costs

(ii) Budgeted Cost per Factory Minute

(iii) Return per Factory Minute for both products

(iv) TA ratios for both products

(v) Throughput cost per the week

(vi) Efficiency ratio & analyse it.

Solution:

(i) Total Budgeted Factory Costs = Total of all costs except materials.

= 25,000 + 12,500 + 1,750 + 22,500 + 8,000 + 3,500 + 5000.

= `.78,250

(ii) Budgeted Cost per Factory Minute = Total Factory Cost/Minutes available

= `.78,250 /31,300 = `.2.50

(iii) (a) Return per bottleneck minute for product X

= Selling Price - Material Cost / Minutes in bottleneck

= (50 – 35) /5 = `.3

(b) Return per bottleneck minute for product Y

= Selling Price - Material Cost / Minutes in bottleneck

= (50 – 32.5) / 10 = `.1.75

(iv) Throughput accounting (TA) Ratio for Product X = = (3 / 2.5) = `.1.2

Throughput Accounting (TA) Ratio for Product Y = = (1.75 / 2.5) = `.0.7

Based on the review of the TA ratios relating to two products, it is apparent that if we only make product Y, the enterprise would suffer a loss, as its TA ratio is less than 1. Advantage will be achieved, when product X is made.

(v) Standard minutes of throughput for the week: =

[4,750 × 5] + [650 × 10] = 23,750 + 6,500 = 30,250 minutes

Throughput cost per week: = 30,250 × `.2.5 per minutes = `.75,625

(vi) Efficiency % = (throughput cost / Actual TFC) % = (`.75,625 / `.78,250) × 100 = 96.6%

The bottleneck resource of Facility A is available for 31,300 minutes per week but produced only 30,250 standard minutes. This could be due to: (a) The process of a "wandering" bottleneck causing facility A to be underutilized. (b) Inefficiency in facility A.

ILLUSTRATION 11: JIT

A Ltd has decided to adopt JIT policy, having following effects:

i. Capital cost of `.2.00 Lakhs to be incurred on machine modification. Additional annual operating cost is expected to be `.2.16 lakhs

ii. Raw material stock holding will reduce from `. 50.00 lakhs to 25.00 lakhs

iii. Rental expenditure of `. 0.75 lakhs for storage facility can be avoided

iv. Property tax and insurance can be saved to the extent of `.0.50 lakhs

v. 3 workers with monthly salary of `.10,000 can be utilised in other production facility of the company

vi. Additional inspection cost of `.0.30 lakh, and stock out cost of `.1.54 lakhs to be incurred

vii. The company gets 12% return on long term investments and assets to be depreciated @10%

Determine the financial impact of JIT policy and advise the management.

Solution:

Costs		Benefits	
Particulars	**Amount `. Lakhs**	**Particulars**	**Amount `. Lakhs**
Interest on Capital (`.2.00 lakhs @12%)	0.24	Interest on working capital released (`.25.00 @12%)	3.00
Additional Operating Cost	2.16	Rental Saved	0.75
Additional Inspection Cost	0.30	Property Tax & Insurance saved	0.50
Stock Out Cost	1.54	Salary cost saved (`.10000 × 3 × 12)	3.60
Total Cost	4.24	Total Benefit	7.85
Net Benefit = 7.85 – 4.24 = 3.61			

Since, net saving of adopting JIT policy is `. 3.61 lakhs, this proposal should be adopted

Note: Depreciation being non cash expenditure, has been ignored.