

DEVELOPMENTS IN THE BUSINESS ENVIRONMENT

Question 1

Explain the essential features of Life-cycle costing.

(5 Marks)(June, 2009)

Answer

Essential features of Life Cycle Costing:

Product Life Cycle costing involves :

- Ø Tracing of costs and revenue of product over several calendar period. Throughout their entire life cycle.
- Ø Emphasis is on Cost and revenue accumulation over the entire life cycle of the product.
- Ø Life cycle costing traces research and design.
- Ø It focus on development costs, incurred to individual products over their entire life cycles.
- Ø Total magnitude of research and development costs are reported and compared with product revenues generated in later periods.

Question 2

What is disinvestments strategy? Highlight the main reasons for disinvestments.

(4 Marks)(June, 2009)

Answer

Divestment Strategy: Divestment involves a strategy of selling off or shedding business operations to divert the resources, so released, for other purposes. Selling off a business segment or product division is one of the frequent forms of divestment strategy. It may also include selling off or giving up the control over subsidiary where by the wholly owned subsidiaries may be floated as independently quoted companies.

Reason for Divestment Strategy

1. In case of a firm having an opportunity to get more profitable product or segment but have resource constraint, it may selling off it's unprofitable or less profitable division and utilized the recourse so released. Cost Benefit analysis & Capita Budgeting Method are the useful tool for analyzing this type of situation.
2. In case of purchase of new business, it may be found that some of the part of the acquired business is not upto the mark. In such type of situation disposal of the unwanted part of the business is more desirable than hold it.
3. In case where any business segment or product or subsidiary is pull down the profit of the whole organization, it is better to cut down of that operation of the product or business segment.

Question 3

What are the critical success factors for the implementation of a "Total Quality Management" programme?
(5 Marks)(Nov., 2009)

Answer

Critical success factors of TQM:

- Focus on customer needs.
- Everyone in the organisation should be involved.
- Focus on continuous improvement.
- Design quality in product and production process.
- Effective performance measurement system.
- Rewards and performance measurements should be renewed.
- Appropriate training and education to everyone to understand the aim of TQM.

Question 4

List out the remedies available for difficulties experienced during implementation of PRAISE.
(4 Marks)(Nov., 2010)

Answer

Remedies available for difficulties experienced in each step available during implementation of praise:

Sl. No.	Activities	Remedies
1.	Problem Identification	Participate in programs like brain storming, multi voting, GD

2.	Ranking	etc Precise definition of a problem and quantification.
3.	Analysis	· Participative approach
4.	Innovation	· Sub ordination of individual to group approach.
5.	Solution	· Lateral thinking/Brain storming.
6.	Evaluation	· Systematic evaluation of all aspects of each strategy.
		· Effective internal communication.
		· Training of personnel/managers
		· Participative approach
		· Effective control system to track actual feedback system

Question 5

How can value analysis achieve cost reduction? (5 Marks)(Nov., 2009)

Answer

Value analysis can do cost reduction in the following manner:

- By identifying and removing unnecessary components in a product which had utility earlier.
- By introducing component substitution at a lesser cost without affecting the quality of the product.
- By simplifying the product design.
- By introducing alternative methods with less cost but improved efficiency.

Question 6

Classify the following items under the three measures used in the theory of constraints:

- (i) Research and Development Cost
- (ii) Rent/Utilities
- (iii) Raw materials used for production
- (iv) Depreciation
- (v) Labour Cost
- (vi) Stock of raw materials
- (vii) Sales
- (viii) Cost of equipments and buildings.

(4 Marks) (May 2011)

Answer

The 3 key measures are :

Contribution	(iii) Raw Material for production	(vii) Sales	
Operating Costs	(ii) Rent/utilities	(iv) Depreciation	(v) Labour
Investments:	(i) R& D	(vi) Raw Material Stock	
	(viii) Building and Equipment Cost		

Question 7

Name any four stage in the process of bench marking

(4 Marks) (May 2011)

Answer

Various stages in the process of benchmarking.

- I Planning
 - Determination of benchmarking goal statement
 - Identification of best performance
 - Establishment of the benchmarking or process improvement team
 - Defining the relevant benchmarking measures
- II Collection of data and information
- III Analysis of finding based on data collected
- IV Formulation and implementation of recommendation
- V Constant Monitoring and reviewing.

Question 8

Differentiate between 'Traditional Management Accounting' and 'Value Chain Analysis in the strategic framework'.

(5 Marks)(Nov., 2008)

Answer

Traditional management accounting focuses on internal information. It often places excessive emphasis on manufacturing costs. It also assumes that cost reduction must be found in the "value-added" process i.e. selling price less the cost of raw material. The value chain analysis approach encompasses external and internal data, uses appropriate cost drivers for all major value-creating processes, exploits linkages throughout the value chain, and provides continuous monitoring of a firm's strategic competitive advantages.

Value Chain vs. Traditional Management Accounting

	Traditional Management Accounting	Value Chain Analysis in the strategic framework
1.	If focuses on internal information	Focuses on external informations.
2.	Application of single cost driver at the overall firm level is taken.	Application of multiple cost drivers i.e. structural and executional are taken for each value activity.
3.	It assume that cost reduction must be found in the value added process	Exploits linkages throughout the value chain i.e. within firm, with suppliers and customers.
4.	Insights for strategic decisions somewhat limited in traditional management accounting	Identity cost driver at the individual activity level and develop cost / differentiation advantage either by controlling those drivers better than competitors by reconfiguring the value chain.

Question 9

Describe the Just-in-time systems

(6 Marks) (Nov., 2008)

Answer

A complete JIT system begins with production, includes deliveries to a company's production facilities, continues through the manufacturing plant and even includes the types of transactions processed by the accounting system.

- (i) The company must ensure that it receives its supplies on time, preferably directly at the production facility that needs them. The company engineers must assist suppliers at their premises and ensure defect free supplies. Thus raw material inventory is reduced if correct quantities are delivered as per production schedules.
- (ii) Long set-up times are reduced into short ones by eliminating inefficiency. Thus the WIP is reduced and so is the number of products before defects are identified.
- (iii) A 'Kanban' card, which authorizes production of the right quantity by its feeder machine ensures 'pulling' the production process and elimination of inventory. Another method is the introduction of a working cell, which is a cluster of machines run by a single trained operator. This also identifies defects quickly and reduces maintenance costs. Both methods are used together.
- (iv) Work force is trained to be empowered to halt operations understand more about the system, product flow, different machines and thus, elaborate reporting of a past variance is eliminated.

- (v) Suppliers may be paid based on production units adjusted for defects.

Question 10

What is Backflushing in JIT? State the problems that must be addressed for the effective functioning of the system. (4 Marks)(May, 2010)

Answer

Back flushing requires no data entry of any kind until a finished product is completed. At the time the total amount finished is entered into the computer system, which multiplies it by all the components listed in the bill of materials for each item produced.

To work system properly some serious problems must corrected.

- (i) Production reporting: The total production figure entered into the system must be absolutely correct.
- (ii) Scrap reporting: All abnormal scrap must be diligently tracked and recorded; otherwise these materials will fall outside the back flushing system and will not be charged to inventory.
- (iii) Lot tracing: Lot tracing is impossible under the back flushing system. It is required when a manufacturer need to keep records of which production lots were used to create a product in case all the items in a lot must be recalled.
- (iv) Inventory accuracy: Maintain accurate set of inventory records.

Question 11

Explain the major components of balanced score card. (4 Marks)(Nov., 2010)

Answer

Well disgned balanced score card combines financial measures of past performance with measures of the firm's drivers of future performance. Generally the Balanced Score Card has the following perspectives from which a company's activity can be evaluate

- 1. Customer perspective i.e how customers see us?
- 2. Internal perspective ie. In what processes must the firm excel?
- 3. Innovation & learning perspective i.e,can we continue to improve and create value?
- 4. Financial perspective i.e., how we look to our share holders?

Question 12

Classify the following measures under appropriate categories in a balanced score card for a banking company which excels in it s home loan products:

- (i) A new product related to life insurance is being considered for a tie up with the successful housing loan disbursements.
e.g. every housing loan applicant to be advised to take a life policy or compelled to take a fire insurance policy.
- (ii) How different sectors of housing loans with different interest rates have been sanctioned, their volumes of growth in the past 4 quarters.
- (iii) How many days are taken to service a loan, how many loans have taken longer, what additional loans are to be released soon, e.t.c
- (Students are not required to copy these statements into their answer books)

(3 Marks)(May, 2011)

Answer

- | | |
|------------------------------------|-----------------------------------|
| (i) New product tie up | - Innovation/learning perspective |
| (ii) Growth of Volume | - Financial perspective |
| (iii) Time for loan/Fresh products | - Customer perspective |

Question 13

Brief the principles associated with synchronous manufacturing. (5 Marks)(May, 2010)

Answer

Synchronous Manufacturing

It is an all encompassing manufacturing management philosophy which includes a set of principles, procedures, and techniques where every action is evaluated in terms of common goals of the organization.

The 7 principles are :

- i. Focus on synchronizing the production flow than on idle capacities.
- ii. Value of time at a bottleneck resource is equal to the throughput rate of products processed by the bottle neck.
- iii. Value of time at a non bottleneck resource is negligible.
- iv. Level of utilization of a non bottleneck resource is controlled by other constraints within the system.
- v. Resources must be utilized, not simply activated.
- vi. Transfer batch should not be equal to the process batch.
- vii. A process batch should be variable both along its route and overtime.

Question 14

Mention the data required to operate the material requirement planning system.

(4 Marks)(Nov., 2010)

Answer

Data requirements to operate material requirement planning system:

1. The master Production schedule: This schedule specifies the quantity of each finished unit of products to be produced and the time at which each unit will be required.
2. The Bill of material file: The bill of material file specifies the sub-assemblies, components and materials required for each of the finished goods.
3. The inventory file: This file maintains details of items in hand for each sub-assembly, components and materials required for each of the finished goods.
4. The routing file: This file specifies the sequence of operations required to manufacture sub-assemblies, components and finished goods.
5. The master parts file: This file contains information on the production time of sub-assemblies; components produced internally and lead times for externally acquired items.

Question 15

Explain the pre-requisites for successful operation of material requirement planning.

(5 Marks)(May, 2011)

Answer

Pre-requisites for successful operation of MRP system are:

- (i) The latest production and purchasing schedules prepared should be strictly adhered to. Day to Day change from predetermined schedules will cause chaos.
- (ii) Raw Materials, sub-assemblies and components required for production should be pre-determined in quantifiable terms. Standard should be set for the consumption quantity, quality, mix and yield of raw materials for every unit of finished product.
- (iii) Work-force must be appraised of the system and the need for absolute adherence to the schedules prepared.
- (iv) Necessary internal control system should be developed to ensure total adherence to the schedule.
- (v) Accuracy of the data supplied is vital to the MRP system.

Question 16

A company makes a single product which sells at ₹ 800 per unit and whose variable cost of production is ₹ 500 per unit. Production and sales are 1000 units per months. Production is running to full capacity and there is market enough to absorb an additional 20% of output each month.

The company has two options:

Option-I

Inspect finished goods at ₹ 10,000 per month. 4% of production is detected as defectives and scrapped at no value. There will be no warranty replacement, since every defect is detected. A small spare part which wears out due to defective material is required to be replaced at ₹ 2,000 per spare for every 20 units of scrap generated. This repair cost is not included in the manufacturing cost mentioned above.

Option-II

Shift the finished goods inspection at no extra cost, to raw material inspection, (since defective raw materials are entitled to free replacement by the supplier), take up machine set-up tuning and machine inspection at an additional cost of ₹ 8,000 per month, so that scrap of finished goods is completely eliminated. However, delivery of uninspected finished products may result in 1 % of the quantity sold to be replaced under free warranty due to minor variation in dimensions, which does not result in the wearing out of the spare as stated in Option-I

- (i) Using monthly figures relevant for decision making, advise which option is more beneficial to the company from a financial perspective.
- (ii) Identify the quality costs that can be classified as
 - (a) appraisal costs and
 - (b) external failure costs.

(5 Marks)(May 2011)

Answer

	Option I		Option II	
Production	1000 Units		1000 Units	
Finished Goods Inspection	10,000	Appraisal	-	
Raw Material Inspection scrap 4% = 40 units x variable cost per unit 500	20,000	Appraisal	10,000	
Contribution lost 300 x 40	12,000	Appraisal		
Machine repair	4,000	Appraisal	-	
Machine set up			8,000	
Warranty replacement	-			
1% x 1000 = 10 unit				

Contribution lost 10 x 300			3,000	External failure
Variable Cost lost 10 x 500			<u>5,000</u>	External failure
Quality Cost	<u>46,000</u>		<u>26,000</u>	

Better Option II**Question 17**

During the last 20 years, KL Ltd's manufacturing operation has become increasingly automated with computer-controlled robots replacing operators. KL currently manufactures over 100 products of varying levels of design complexity. A single plant wide overhead absorption rate, based on direct labor hours is absorb overhead costs.

In the quarter ended March, KL's manufacturing overhead costs were:

	(₹ 000)
Equipment operation expenses	125
Equipment maintenance expenses	25
Wages paid to technicians	85
Wages paid to component stores staff	35
Wages paid to dispatch staff	<u>40</u>
Total	<u>310</u>

During the quarter, the company reviewed the Cost Accounting System and concluded that absorbing overhead costs to individual products on a labour hour absorption basis was meaningless and that overhead costs should be attributed to products using an Activity Based Costing (ABC) system. The following are identified as the most significant activities.

- (i) Receiving component consignments from suppliers.
- (ii) Setting up equipment for production runs
- (iii) Quality inspections
- (iv) Dispatching goods as per customer's orders.

Equipment operation and maintenance expense are apportioned as :

- Component stores 15% production runs 70% and dispatch 15%

Technician's wages are apportioned as:

- Equipment maintenance 30% set up equipment for production runs 40% and quality inspections 30%

During the quarter:

- (i) 980 component consignments were received from suppliers.
- (ii) 1020 production runs were set up

- (iii) 640 quality inspections were carried out.
 (iv) 420 orders were dispatched to customers.

KL's production during the quarter included component R. The following information is available:

	Component R
Component Consignments received	45
Production runs	16
Quality Inspections	10
Orders (goods) dispatched	22
Quantity produced	560

Calculate the unit manufacturing overhead cost of component R using ABC system.

(8 Marks) (May 2011)

Answer

	Receiving Supplies (₹ 000)	Set ups (₹ 000)	Quality Inspection (₹ 000)	Despatch (₹ 000)	Total (₹'000)
Equipment Operation Expenses	18.75	87.50		18.75	125.00
Maintenance technicians wages initially allocated to maintenance (30% of ₹ 85,000 = ₹ 25,500	3.75	17.50		3.75	25.00
and then reallocated on the same basis on maintenance	3.83	17.85		3.82	25.50
Balance of technician wages, allocated to set ups and quality inspections		34.00	25.50		59.50
Stores wages – Receiving	35.00				35.00
Despatch wages – Despatch				40.00	40.00
	<u>61.33</u>	<u>156.85</u>	<u>25.50</u>	<u>66.32</u>	<u>310.00</u>

Note: Equipment operations expenses and Maintenance allocated on the basis 15%, 70%, and 15% as specified in the question.

The next stage is to identify cost drivers for each activity and established cost driver rates by dividing

the activity costs by a measure of cost drive usage for the period. The Calculations are as follows:

Receiving supplies (₹ 61,330/980)	=	₹ 62.58 per component
Performing set ups (₹ 1,56,850/1020)	=	₹ 153.77 per set up
Despatching goods (₹ 66,320/420)	=	₹ 157.93 per goods order despatched
Quality Inspection (₹ 25,500/640)	=	₹ 39.84

Finally the costs are assigned to components based on their cost driver usage. The assignments are as follows:

	(₹)
Direct Labour	300.00
Direct Materials	1200.00
Receiving supplies	2816.10
Performing Set Up	2460.32
Quality Inspection	398.40
Despatching goods	<u>3474.46</u>
Total Overhead Costs	<u>10461.54</u>
	(₹)
No. of units produced	560
Cost per unit	16.34

For components the overhead costs have been assigned as follows (for components R)

Receiving supplies	(45 receipts at ₹ 62.58)
Performing setups	(16 production runs at ₹ 153.77)
Quality Inspections	(10 at ₹ 39.84)
Despatching goods	(22 at ₹ 157.93)

Question 18

A company produces three products A, B and C. The following information is available for a period:

	A	B	C
Contribution (Rupees per unit) (Sales – Direct materials)	30	25	15

Machine hours required per unit of production:

	Hours			
	A	B	C	Throughout accounting ratio
Machine 1	10	2	4	133.33%
Machine 2	15	3	6	200%
Machine 3	5	1	2	66.67%

Estimated sales demand for A, B and C are 500 units each and machine capacity is limited to 6,000 hours for each machine.

You are required to analyse the above information and apply theory of constraints process to remove the constraints.

How many units of each product will be made? (5 Marks)(Nov.,2008)

Answer

Throughout Accounting ratio is highest for 'Machine 2'.

\ 'Machine 2' is the bottleneck

Contribution per unit of bottleneck machine hour :

Total 'Machine 2' hours available = 6,000

		A	B	C
A.	Contribution per unit (₹)	30	25	15
B.	'Machine 2' hours	15	3	6
C.	Contribution per 'Machine 2' hours (A / B)	2	8.33	2.50
D.	Ranking	3	1	2
E.	Maximum Demand	500	500	500
	'Machine 2' hours required (B ´ E)	7,500	1,500	3,000
	'Machine 2' hours available	1,500	1,500	3,000
	Units	100	500	500

Question 19

TQ Ltd. implemented a quality improvement programme and had the following results:

	(Figures in ₹ '000)	
	2007	2008
Sales	6,000	6,000
Scrap	600	300
Rework	500	400
Production inspection	200	240

Product warranty	300	150
Quality training	75	150
Materials inspection	80	60

You are required to:

- Classify the quality costs as prevention, appraisal, internal failure and external failure and express each class as a percentage of sales.
- Compute the amount of increase in profits due to quality improvement.

(4 Marks)(Nov. 2008)

Answer

(i) Classification of Quality Costs

Figures ₹ '000

	2007	% of sales	2008	% of sales
Sales	<u>6,000</u>		<u>6,000</u>	
Prevention				
Quality training	<u>75</u>	1.25	<u>150</u>	2.5
Appraisal				
Product Inspection	<u>200</u>		<u>240</u>	
Materials Inspection	<u>80</u>		<u>60</u>	
	<u>280</u>	4.67	<u>300</u>	5
Internal Failure				
Scrap	<u>600</u>		<u>300</u>	
Rework	<u>500</u>		<u>400</u>	
	<u>1100</u>	18.33	<u>700</u>	11.67
External Failure				
Product warranty	<u>300</u>	5	<u>150</u>	<u>2.5</u>
	<u>1755</u>	29.25	<u>1300</u>	<u>21.67</u>

- Cost reduction was effected by 7.58% (29.25 – 21.67) of sales, which is an increase in profit by ₹ 4,55,000.

Question 20

Traditional Ltd. is a manufacturer of a range of goods. The cost structure of its different products is as follows:

Particulars	Product	Product	Product	
	A	B	C	
Direct materials	50	40	40	₹ /u

Direct labour @ 10 ₹ /hour	30	40	50	₹ /u
Production overheads	30	40	50	₹ /u
Total Cost	110	120	140	₹ /u
Quantity produced	10,000	20,000	30,000	Units

Traditional Ltd. was absorbing overheads on the basis of direct labour hours. A newly appointed management accountant has suggested that the company should introduce ABC system and has identified cost drivers and cost pools as follows:

Activity Cost Pool	Cost Driver	Associated Cost
Stores Receiving	Purchase Requisitions	2,96,000
Inspection	Number of Production runs	8,94,000
Dispatch	Orders Executed	2,10,000
Machine Setup	Number of setups	12,00,000

The following information is also supplied:

Details	Product A	Product B	Product C
No. of Setups	360	390	450
No. of Orders Executed	180	270	300
No. of Production runs	750	1,050	1,200
No. of Purchase Requisitions	300	450	500

You are required to calculate activity based production cost of all the three products.

(5 Marks)(June, 2009)

Answer

The total production overheads are ₹ 26,00,000:

Product A: $10,000 \times ₹ 30 = ₹ 3,00,000$

Product B: $20,000 \times ₹ 40 = ₹ 8,00,000$

Product C: $30,000 \times ₹ 50 = ₹ 15,00,000$

On the basis of ABC analysis this amount will be apportioned as follows:

Statement of Activity Based Production Cost							
Activity Pool	Cost	Cost Driver	Ratio	Total Amount (₹)	A (₹)	B (₹)	C
Stores Receiving		Purchase requisition	6:9:10	2,96,000	71,040	1,06,560	1,18,400
Inspection		Production Runs	5:7:8	8,94,000	2,23,500	3,12,900	3,57,600

Dispatch	Orders Executed	6:9:10	2,10,000	50,400	75,600	84,000	
Machine Setups	Set ups	12:13:15	12,00,000	3,60,000	3,90,000	4,50,000	
Total Activity Cost				7,04,940	8,85,060	10,10,000	
Quantity Sold				10,000	20,000	30,000	
Unit Cost				70.49	44.25	33.67	
Add: Conversion Cost				80	80	90	
Total				150.49	124.25	123.67	

Question 21

A bank offers three products, viz., deposits, Loans and Credit Cards. The bank has selected 4 activities for a detailed budgeting exercise, following activity based costing methods.

The bank wants to know the product wise total cost per unit for the selected activities, so that prices may be fixed accordingly.

The following information is made available to formulate the budget:

	Activity	Present Cost (₹)	Estimation for the budget period
(i)	ATM Services:		
	(a) Machine maintenance	4,00,000	(all fixed, no change)
	(b) Rents	2,00,000	(fully fixed; no change)
	(c) Currency Replenishment Cost	1,00,000	(expected to double during budget period)
		7,00,000	(This activity is driven by no. of ATM transactions)
(ii)	Computer Processing	5,00,000	(Half this amount is fixed and no change is expected) (The variable portion is expected to increase to three times the current level). This activity is driven by the number of computer transactions.
(iii)	Issuing Statements	18,00,000	Presently, 3 lac statements are made. In the budget period, 5 lac statements are expected; For every increase of one lac statement, one lac rupees is the budgeted increase (this activity is driven by the number of statements)

(iv)	Computer Inquiries	2,00,000	Estimated to increase by 80% during the budget period. (This activity is driven by telephone minutes).
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The activity drivers and their budgeted quantifies are given below:

	Deposits	Loans	Credit Cards
No. of ATM Transactions	1,50,000	-	50,000
No. of Computer Processing Transactions	15,00,000	2,00,000	3,00,000
No. of Statements to be issued	3,50,000	50,000	1,00,000
Telephone Minutes	3,60,000	1,80,000	1,80,000

The bank budgets a volume of 58,600 deposit accounts, 13,000 loan accounts, and 14,000 Credit Card Accounts.

You are required to:

- (i) Calculate the budgeted rate for each activity.
- (ii) Prepare the budgeted cost statement activity wise.
- (iii) Find the budgeted product cost per account for each product using (i) and (ii) above.

(12 Marks)(Nov., 2009)

Answer

Budget Cost Statement

Activity	Activity Cost (₹) (Budgeted)	Activity Driver	No. of Units of Activity Driver (Budget)	Activity Rate (₹)	Deposits	Loans	Credit Cards
1. ATM Services	8,00,000	ATM Transaction	2,00,000	4	6,00,000	-	2,00,000
2. Computer Processing	10,00,000	Computer Transaction	20,00,000	0.50	7,50,000	1,00,000	1,50,000
3. Issuing Statements	20,00,000	No. of Statements	5,00,000	4.00	14,00,000	2,00,000	4,00,000
4. Customer Inquiries	3,60,000	Telephone Minutes	7,20,000	0.50	1,80,000	90,000	90,000
Budgeted Cost	41,60,000				29,30,000	3,90,000	8,40,000
Units of product as estimated in the budget period					58,600	13,000	14,000
Budgeted Cost per unit of the product					50	30	60

Working Notes:

- (i) ATM $4,00,000 + 2,00,000 + 2 \times 1,00,000 = 8,00,000$
- (ii) Computer $5,00,000$ (Fixed = 2,50,000) Variable 2,50,000 increase to 3 times = 7,50,000 = 10,00,000
- (iii) Issuing Statements $2,00,000 + 80\% \times 2,00,000 = 2 + 1.6 = 3,60,000$.

Question 22

AML Ltd. is engaged in production of three types of ice-cream products: Coco, Strawberry and Vanilla. The company presently sells 50,000 units of Coco @ ₹ 25 per unit, Strawberry 20,000 @ ₹ 20 per unit and Vanilla 60,000 units @ ₹ 15 per unit. The demand is sensitive to selling price and it has been observed that every reduction of Re. 1 per unit in selling price, increases the demand for each product by 10% to the previous level. The company has the production capacity of 60,500 units of Coco, 24,200 units of Strawberry and 72,600 units of Vanilla. The company marks up 25% on cost of the product.

The Company management decides to apply ABC analysis. For this purpose it identifies four activities and the rates as follows:

<u>Activity</u>	<u>Cost Rate</u>
Ordering	₹ 800 per purchase order
Delivery	₹ 700 per delivery
Shelf stocking	₹ 199 per hour

Customer support and assistance ₹ 1.10 p.u. sold.

The other relevant information for the products are as follows:

	Coco	Strawberry	Vanilla
Direct Material p.u. (₹)	8	6	5
Direct Labour p.u. (₹)	5	4	3
No. of purchase orders	35	30	15
No. of deliveries	112	66	48
Shelf stocking hours	130	150	160

Under the traditional costing system, store support costs are charged @ 30% of prime cost. In ABC these costs are coming under customer support and assistance.

Required:

- Calculate target cost for each product after a reduction of selling price required to achieve the sales equal to the production capacity.
- Calculate the total cost and unit cost of each product at the maximum level using traditional costing.
- Calculate the total cost and unit cost of each product at the maximum level using activity based costing.
- Compare the cost of each product calculated in (i) and (ii) with (iii) and comment on it.

(12 Marks) (May, 2010)

Answer

- (i) Cost of products under target costing

Demanded unit and selling price

Coco		Strawberry		Vanilla	
Selling Price	Demand	Selling Price	Demand	Selling Price	Demand
25	50000	20	20000	15	60000
24	55000	19	22000	14	66000
23	60500	18	24200	13	72600

Target cost of each product after reduction in selling price

	Coco	Strawberry	Vanilla
Selling price after reduction	23.00	18.00	13.00
Profit marks up 25% on cost i.e 20 % on selling price	4.60	3.60	2.60
Target cost of production (per unit)	18.40	14.40	10.40

- (ii) Cost of product under traditional costing

	Coco	Strawberry	Vanilla
	(₹)	(₹)	(₹)
Units	60500	24200	72600
Material cost (8,6,5 per unit)	8	6	5
Labour cost (5,4,3 per unit)	5	4	3
Prime cost	13	10	8
Store support costs (30% of prime)	3.90	3	2.40
Cost per unit	16.90	13.00	10.40

- (iii) Cost of product under activity based costing

	Coco	Strawberry	Vanilla
	(₹)	(₹)	(₹)
Units	60500	24200	72600
Material cost (8,6,5 per unit)	484000	145200	363000
Labour cost (5,4,3 per unit)	302500	96800	217800
Prime cost	786500	242000	580800
Ordering cost @ ₹ 800 (35, 30, 15)	28000	24000	12000
Delivery cost @ ₹ 700 (112, 66, 48)	78400	46200	33600
Shelf stocking @ ₹ 199, (130,150,160)	25870	29850	31840
Customer Support ₹ 1.10	66550	26620	79860
Total Cost	985320	368670	738100
Cost Per unit	16.29	15.23	10.17

(iv) Comparative Analysis of cost of production (₹)

	Coco	Strawberry	Vanilla
	(₹)	(₹)	(₹)
(a) As per Target Costing	18.40	14.40	10.40
(b) As per traditional Costing	16.90	13.00	10.40
(c) As per Activity Based Costing	16.29	15.23	10.17
(a) - (c)	2.11	-0.83	0.23
(b) - (c)	0.61	-2.23	0.23

Note : The cost of product of strawberry is higher in ABC method in comparison to target costing and traditional methods. It indicated that actual profit under target costing is less than targeted. For remaining two products, ABC is most suitable.

Question 23

H. Ltd. manufactures three products. The material cost, selling price and bottleneck resource details per unit are as follows:

	Product X	Product Y	Product Z
Selling price (₹)	66	75	90
Material and other variable cost (₹)	24	30	40
Bottleneck resource time (minutes)	15	15	20

Budgeted factory costs for the period are ₹ 2,21,600. The bottleneck resources time available is 75120 minutes per period.

Required:

- Company adopted throughput accounting and products are ranked according to 'product return per minute'. Select the highest rank product.
- Calculate throughput accounting ratio and comment on it. (5 Marks)(Nov., 2010)

Answer

- Calculation of Rank according to product return per minute

Particulars	X	Y	Z
Selling Price	66	75	90
Variable Cost	24	30	40
Throughput Contribution	42	45	50
Minutes per unit	15	15	20
Contribution per minute	2.8	3	2.5
Ranking	II	I	III

(ii)

Factory Cost per minute(221600/75120)	2.95	2.95	2.95
TA Ratio = Contrb per min / cost per minute	0.95	1.02	0.85
Ranking based on TA Ratio	II	I	III

Comment : Product Y yields more contribution compared to average factory contribution per minute, whereas X and Z yield less.

Question 24

Fruitolay had decided to increase the size of the store. It wants the information about the probability of the individual product lines : Lemon, grapes and papaya. It provides the following data for the 2009 for each product line:

	Lemon	Grapes	Papaya
Revenues	₹ 79,350.00	₹ 2,10,060.00	₹ 1,20,990.00
Cost of goods sold	₹ 60,000.00	₹ 1,50,000.00	₹ 90,000.00
Cost of bottles returned	₹ 1,200.00	₹ 0	₹ 0
Number of purchase orders placed	36	84	36
Number of deliveries received	30	219	66
Hours of shelf stocking time	54	540	270
Items sold	12,600	1,10,400	30,600

Fruitolay also provides the following information for the year 2009:

S. No.	Activity	Description of Activity	Total costs (₹)	Cost allocation basis
1.	Bottle returns	Returning of empty bottles to the store	1,200.00	Direct tracing to product line
2.	Ordering	Placing of orders of purchases	15,600.00	156 purchase orders
3.	Delivery	Physical delivery and the receipts of merchandise	25,200.00	315 deliveries
4.	Self stocking	Stocking of merchandise on store shelves and ongoing restocking	17,280.00	864 hours of time
5.	Customer support	Assistance provided to customers including bagging and checkout	30,720.00	153600 items sold

Required:

- (i) *Fruitolay currently allocates store support costs (all costs other than the cost of goods sold) to the product line on the basis of the cost of goods sold of each product line. Calculate the operating income and operating income as the percentage of revenue of each product line.*
- (ii) *If Fruitolay allocates store support costs (all costs other than the cost of goods sold) to the product lines on the basis of ABC system, calculate the operating income and operating income as the percentage of revenue of each product line.*
- (iii) *compare both the systems.* (11 Marks)(Nov., 2010)

Answer

(i)

Particulars	Lemon	Grapes	Papaya	Total
Revenue	79,350	2,10,060	1,20,990	4,10,400
Less: Cost of goods sold (COGS)	60,000	1,50,000	90,000	3,00,000
Less: Store Support Cost	18,000	45,000	27,000	90,000
Operating income	1,350	15,060	3,990	20,400
Operating Income %	1.70%	7.17%	3.30%	4.97%

(ii) ABC System

Activity	Cost Hierarchy Level	Total Costs (Rs)	Quantity Of Cost Allocation Base	Overhead Allocation Rate
Ordering	Batch	15600.00	156 Purchase orders	₹ 100
Delivery	Batch	25200.00	315 delivering orders	₹ 80
Shelf stocking	Output unit	17280.00	864 self stocking hours	₹ 20
Customer support	Output unit	30,720.00	153600 items sold	₹ 0.20

Particulars	Cost Driver	Lemon	Grapes	Papaya	Total
Bottle Returns	Direct	1,200	0	0	1,200
Ordering	Purchase orders	3,600	8,400	3,600	15,600
Delivery	Deliveries	2,400	17,520	5,280	25,200
Self Stocking	Hours of time	1,080	10,800	5,400	17,280
Customer Support	Items Sold	2,520	22,080	6,120	30,720
Grand Total		10,800	58,800	20,400	90,000

<i>Particulars</i>	<i>Lemon</i>	<i>Grapes</i>	<i>Papaya</i>	<i>Total</i>
Revenue	79,350	2,10,060	1,20,990	410,400
Less: Cost of goods sold	60,000	1,50,000	90,000	300,000
Less: Store Support Cost	10,800	58,800	20,400	90,000
Operating income	8,550	1,260	10,590	20,400
Operating Income %	10.78%	0.60%	8.75%	4.97%

Summary

	<i>Lemon</i>	<i>Grapes</i>	<i>Papaya</i>	<i>Total</i>
Under Traditional Costing System	1.70%	7.17%	3.30%	4.97%
Under ABC System	10.78%	0.60%	8.75%	4.97%

The grapes line drops sizeably when ABC is used. Although it constitutes 50 % COGS, it uses a higher percentage of total resources in each activity area., especially the high cost of customer support area. In contrast, lemon line draws a much lower percentage of total resources used in each activity area than its percentage of total COGS. Hence under ABC, Lemon is most profitable. Fruitolay can explore ways to increase sales of lemons and also explore price increases on grapes.

Operating Income Ranking is highest for Grapes under Traditional System because other products bear its overhead cost, whereas under ABC a more accurate picture shows Grapes as the lowest ranking product.