

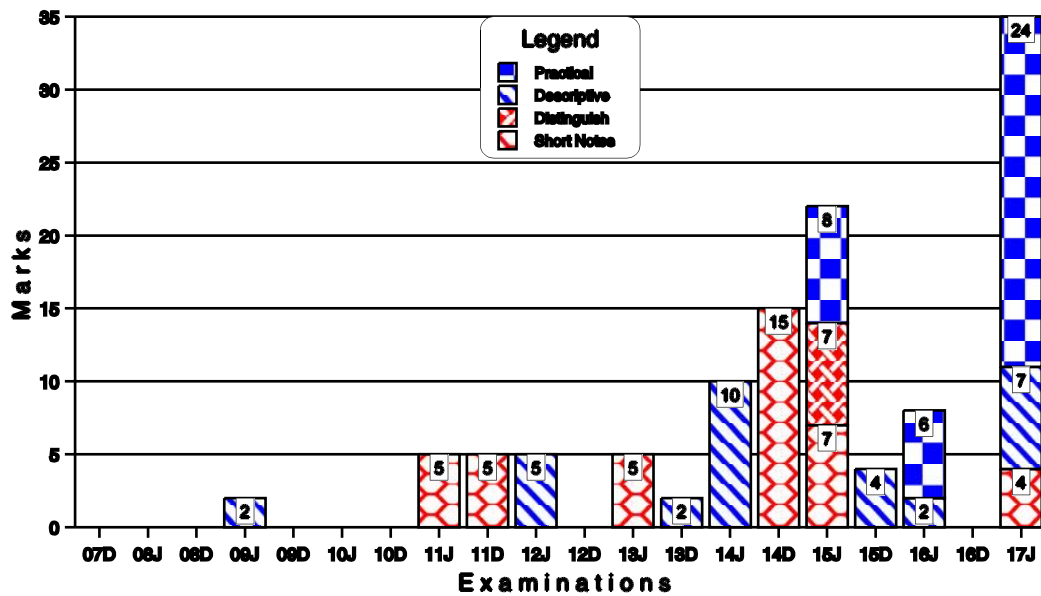
# 1

## COST MANAGEMENT

### THIS CHAPTER INCLUDES

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| <ul style="list-style-type: none"> <li>• Life Cycle Costing</li> <li>• Target Costing</li> <li>• Kaizen Costing</li> <li>• Value Analysis and Value Engineering</li> <li>• Throughput Costing</li> </ul> | <ul style="list-style-type: none"> <li>• Business Process Re-engineering</li> <li>• Back-flush Accounting</li> <li>• Lean Accounting</li> <li>• Socio Economic Costing</li> <li>• Cost Control and Cost Reduction</li> </ul> |
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Marks of Short Notes, Distinguish Between, Descriptive & Practical Questions



## CHAPTER AT A GLANCE

S. No.	Topic	Important Highlights
1.	<b>Meaning of Life Cycle Costing</b>	<p><b>Life Cycle Costing</b> aims at cost ascertainment of a product, project etc. over its projected life.</p> <p>It is a system that tracks and accumulates the actual costs and revenues attributable to cost object (i.e.; product) from its inception to its abandonment.</p>
2.	<b>Meaning of Product Life Cycle</b>	Product Life Cycle is a pattern of expenditure, sale level, revenue and profit over the period from new idea generation to the deletion of product from product range.
3.	<b>Importance of Product Life Cycle Costing</b>	<p><b>(a) Time based analysis:</b> Life cycle costing involves tracing of costs and revenues of each product over several calendar periods throughout their life cycle. Costs and revenues can analysed by time periods. The total magnitude of costs for each individual product can be reported and compared with product revenues generated in various time periods.</p> <p><b>(b) Overall Cost Analysis:</b> Production Costs are accounted and recognized by the routine accounting system. However non-production costs like R&amp;D; design; marketing; distribution; customer service etc. are less visible on a product — by — product basis. Product Life Cycle Costing focuses on recognizing both production and non-production costs.</p> <p><b>(c) Pre-production costs analysis:</b> The</p>

development period of R&D and design is long and costly. A high percentage of total product costs may be incurred before commercial production begins. Hence; the Company needs accurate information on such costs for deciding whether to continue with the R&D or not.

- (d) Effective Pricing Decisions:** Pricing Decisions; in order to be effective; should include market considerations on one hand and cost considerations on the other. Product Life Cycle Costing and Target Costing help analyze both these considerations and arrive at optimal price decisions.
- (e) Better Decision Making:** Based on a more accurate and realistic assessment of revenues and costs, at least within a particular life cycle stage, better decisions can be taken.
- (f) Long Run Holistic view:** Product Life Cycle Costing can promote long-term rewarding in contrast to short-term profitability rewarding. It provides an overall framework for considering total incremental costs over the entire life span of a product, which in turn facilitates analysis of parts of the whole where cost effectiveness might be improved.
- (g) Life Cycle Budgeting:** Life Cycle Budgeting, i.e., Life Cycle Costing with Target Costing principles, facilitates scope for cost reduction at the design stage itself. Since costs are avoided before they are committed or locked in the Company is benefitted.

4.	<b>Target costing</b>	Target Costing is defined as “a structured approach in determining the cost at which a proposed product with specified functionality and quality must be produced, to generate a desired level of profitability at its anticipated selling price.
5.	<b>Steps in Target Costing</b>	<p><b>Step 1: Customer product Design Specification:</b></p> <p>(a) The customer requirements as to the functionality and quality of the product is of prime importance</p> <p>(b) The design specification of the new product is based on customer’s tastes, expectations and requirements.</p> <p>(c) Competitor’s products and the need to have extra features over competitor’s products are also considered. However the need to provide improved products, without significant increase in prices, should be recognized as charging a higher price may not be possible in competitive conditions.</p> <p><b>Step 2 &amp; Step 3: Market - Target Selling Price and Production Volume:</b></p> <p>(a) The Target Selling Price is determined using various sales forecasting techniques.</p> <p>(b) The price is also influenced by the offers of competitors, product utility, prices, volumes and margins.</p> <p>(c) In view of competition and elasticity of demand, the Firm has to forecast the price volume relationship with reasonable certainty. Hence the Target Selling Price is market driven and should encompass a realistic reflection of the competitive environment.</p>

	<p>(d) Establishment of Target Production Volumes is closely related to Target Selling price, given the relationship between price and volume.</p> <p>(e) Target Volumes are also significant in computation of unit costs particularly Capacity Related Costs and Fixed Costs. Product Costs are dependent upon the production levels over the life cycle of the product.</p> <p><b>Step 4: Profitability - Target Profit Margin:</b></p> <p>(a) Since profitability is Critical for survival, a Target Profit Margin is established for all new products.</p> <p>(b) The Target Profit Margin is derived from the company's long term business plan, objectives and strategies.</p> <p>(c) Each product or product line is required to earn atleast the Target Profit Margin.</p> <p><b>Step 5: Setting Target Costs:</b></p> <p>(a) The difference between the Target Selling Price and Target Profit Margin indicates the "Allowable Cost" for the product.</p> <p>(b) Ideally, the Allowable Cost becomes the "Target Cost for the product". However, the Target Cost may exceed the Allowable Cost, in light of the realities associated with existing capacities and capabilities.</p> <p><b>Step 6: Computing Current Costs:</b></p> <p>(a) The "Current Costs" for producing the new product should be estimated.</p> <p>(b) The estimation of Current Cost is based on existing technologies and components, taking into account the functionalities and quality requirements of the new product.</p> <p>(c) Direct Costs are determined by reference to design specifications, materials prices,</p>
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		<p>labour processing time and wage rates. Indirect Costs may be estimated using Activity Based Costing Principles.</p> <p><b>Step 7: Setting Cost Reduction Targets:</b></p> <p>(a) The difference between Current Cost and Target Cost indicates the required cost reduction.</p> <p>(b) This amount may be divided into two constituents namely - (a) Target Cost - Reduction Objective and (b) Strategic Cost - Reduction Challenge.</p> <p>(c) The former is viewed as being achievable (yet still a very challenging target) while the latter acknowledges current inherent limitations.</p> <p>(d) After analyzing the Cost Reduction Objective, a Product-Level Target Cost is set which is the difference between the current cost and the target cost -reduction objective.</p> <p><b>Step 8: Identifying Cost Reduction Opportunities:</b></p> <p>(a) After the Product-Level Target Cost is set, a series of analytical activities, commence to translate the cost challenge into reality.</p> <p>(b) These activities continue from the design stage until the point when the new product goes into production.</p> <p>(c) The total target is broken down into its various components, each component is studied and opportunities for cost reductions are identified.</p> <p>(d) These activities are referred to as (a) Value Engineering (VE) and (b) Value Analysis (VA).</p>
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6.	<b>Kaizen Costing</b>	Kaizen Costing refers to the ongoing continuous improvement program that focuses on the reduction of waste in the production process, thereby further lowering costs below the initial targets specified during the design phase. It is a Japanese term for a number of cost reduction steps that can be used subsequent to issuing a new product design to the factory floor.
7.	<b>Value Analysis</b>	The Value Analysis (VA) technique was developed after the Second World War in America at General Electric during the late 1940s. Since this time the basic VA approach has evolved and been supplemented with new techniques that have become available and have been integrated with the formal VA process.
8.	<b>Value Engineering</b>	Value Engineering is an effective problem solving technique. Value engineering is essentially a process which uses function analysis, team-work and creativity to improve value. Value Engineering is not just “good engineering.” It is not a suggestion program and it is not routine project or plan review. It is not typical cost reduction in that it doesn’t “cheapen” the product or service, nor does it “cut corners.”
9.	<b>Throughput Costing</b>	Throughput Accounting is a management accounting technique used as a performance measure in the theory of constraints. It is the business intelligence used for maximizing profits. It focuses importance on generating more throughput. It seeks to increase the velocity or speed of production of products and services keeping in view of constraints. It is based on the concept that a company must

		determine its overriding goal and then it should create a system that clearly defines the main capacity constraint that allows it to maximize that goal.
10.	<b>Business Process Re-engineering</b>	Business Process Re-engineering (BPR) refers to the fundamental rethinking and redesign of business processes to achieve improvement in critical measures of performance such as cost, quality, service, speed and customer satisfaction.
11.	<b>Seven Principles of BPR</b>	<ul style="list-style-type: none"> <li>(a) Processes should be designed to achieve a desired outcome rather than focusing on existing tasks.</li> <li>(b) Personnel who use the output from a process should perform the process</li> <li>(c) Information processing should be included in the work, which produces the information</li> <li>(d) Geographically dispersed resources should be treated, as if they are centralized</li> <li>(e) Parallel activities should be linked rather than integrated</li> <li>(f) Doers should be allowed to be self-managing</li> <li>(g) Information should be captured once at source.</li> </ul>
12.	<b>Back-flush accounting</b>	Backflush accounting is when you wait until the manufacture of a product has been completed, and then record all of the related issuances of inventory from stock that were required to create the product. This approach has the advantage of avoiding all manual assignments of costs to products during the various production stages, thereby eliminating a large number of transactions and the associated labor.



13.	<b>Lean Accounting</b>	Lean Accounting is the general term used for the changes required to a company's accounting, control, measurement, and management processes to support lean manufacturing and lean thinking. Most companies embarking on lean manufacturing soon find that their accounting processes and management methods are at odds with the lean changes they are making.
14.	<b>Socio Economic Costing</b>	Socio economics (also known as social economics) is the social science that studies how economic activity affects and is shaped by social processes. In general it analyzes how societies progress, stagnate, or regress because of their local or regional economy, or the global economy. Socio economics is sometimes used as an umbrella term with different usages. The term 'social economics' may refer broadly to the "use of economics in the study of society.

## SHORT NOTES

2011 - June [4] Write short note on the following :

(a) Lean Organization

(5 marks)

**Answer :**

### **Lean Organization**

- For years together manufacturers have created products in anticipation of having a market for them.
- Operations have traditionally been driven by sales forecasts and firms tended to stockpile inventories in case they were needed.
- A key difference in Lean Manufacturing is that it is based on the concept that production can and should be driven by real customer demand.
- Instead of producing what you hope to sell; Lean Manufacturing can produce what your customer wants with shorter lead times. Instead

of pushing product to market, it's pulled there through a system that's set up to quickly respond to customer demand.

- Lean organizations are capable of producing high-quality products economically in lower volumes and bringing them to market faster than mass producers.
- A lean organization can make twice as much product with twice the quality and half the time and space. At half the cost, with a fraction of the normal work-in-progress inventory.
- Lean management is about operating the most efficient and effective organization possible, with the least cost and zero waste.

**2011 - Dec [4]** Write short note on the following:

(b) Kaizen Costing

**(5 marks)**

**Answer:**

- Kaizen is a Japanese term meaning "change for the better". The concept of Kaizen encompasses a wide range of ideas; it involves making the work environment more efficient and effective by creating a team atmosphere, improving everyday procedures, ensuring employee satisfaction and making a job more fulfilling, less tiring and safer.
- A method of costing that involves making continual, incremental improvements to the production process during the manufacturing phase of the product/service lifecycle, typically involving setting targets for cost reduction. Some of the key objectives of the Kaizen philosophy include the elimination of waste, quality control, just-in-time delivery, standardized work and the use of efficient equipment.

*An example of the Kaizen philosophy in action is the Toyota production system, in which suggestions for improvement are encouraged and rewarded, and the production line is stopped when a malfunction occurs.*

**2013 - June [4]** Write short note on the following:

(a) Lean Accounting

**(5 marks)**

**Answer:**

**Lean accounting**

- It refers to the application of lean principles in day to day accounting process by eliminating 3Ms (muda-waste, muri-variation, and mura-stain on resources) by looking at it from eyes of the customer/user/beneficiary group.

- Lean accounting highlights the importance of the lean performance measurements and reporting in the general accounting for lean application process.
- There are basically three aspects to measure lean performance as given under:
  - (i) Development of strategy which supports, company level measurement,
  - (ii) Continuous improvement through value stream level measurement, and
  - (iii) Process and cell design measurements driving the mudiari Process.

**2014 - Dec [8]** Write Short Notes on the following:

- (b) Areas of Cost Reduction and techniques to be adopted for Cost Reductions
  - (c) Need for 'Lean Accounting'
  - (d) Kaizen Costing
- (5 marks each)**

**Answer:**

**(b) Areas of Cost Reduction and Techniques to be adopted for Cost Reductions:**

**Areas of Cost Reduction:**

- (1) Reduce payroll costs by outsourcing activities.
- (2) Redesign processes to eliminate duplication of effort and time.
- (3) Make more use of technology and automation.
- (4) Consolidate purchasing with fewer suppliers to get better discounts and build strong relationships.
- (5) Agree to long-term supply contracts or annual purchase volumes in return for lower prices and negotiate longer payment terms.
- (6) Trim back your product range and increase production runs.
- (7) Get the most out of your premises by sub-letting spare space.
- (8) Cut the cost of communications and travel by using email, internet calls (such as Skype) or teleconferencing whenever possible.

**Cost Reduction Techniques**

- (1) **Standardization:** According to Kimball and Kimball , "By standardization in the manufacturing scene meant the reduction

of any one line to fixed types, sizes and characteristics.” In simple words standardization is the process of formulating and applying rules for an orderly approach to specific activity.

- (2) **Codification:** It is a process of representing each item by a number, the digit of which indicates the group, the type and the dimension of item.
- (3) **Value Analysis:** Value analysis is defined as an organized creative approach which has, as its objective, the efficient identification of unnecessary cost.

**Answer:**

**(c) Need for Lean Accounting:**

- Lean Accounting provides accurate, timely and understandable information that can be used by managers, sales people, operations leaders, accountants, lean improvement teams and other policy makers.
- The information gives clear insight into the company's performance: both operational and financial.
- It measures the right things for a company that wants to drive forward with lean transformation.
- There are positive and negative reasons for using Lean Accounting. The positive reasons include the issues addressed in the “Vision for Lean Accounting” shown above.
- Lean Accounting provides accurate, timely and understandable information that can be used by managers, sales people, operations leaders, accountants, lean improvement teams and others.
- The information gives clear insight into the company's performance; both operational and financial.
- The Lean accounting reporting motivates people in the organization to move lean improvement forward. It is often stated that-what you measure is what will be improved.
- Lean accounting measures the right things for a company that wants to drive forward with lean transformation.
- Lean Accounting is also itself lean.
- The information, reports and measurements can be provided quickly and easily.
- It does not require the complex systems and wasteful transactions that are usually used by manufacturing Companies.

- The simplicity of lean Accounting frees up the time of the financial people and the operational people so that they can become more actively involved in moving the Company forward towards its strategic goals.
- The role of the financial professional moves away from book keeper and reporter and towards strategic partnering with the Company leaders.

**Answer:**

**(d) Kaizen Costing: Please refer 2011 - Dec [4] (b) on page no. 18**

**2015 - June [4] (a) (ii) Write a note on "Kaizen Costing". (7 marks)**

**Answer:**

**Please refer 2011 - Dec [4] (b) on page no. 18**

**2017 - June [8] Write a short note on the following:**

**(a) Variants of Backflush Accounting. (4 marks)**

**DISTINGUISH BETWEEN**

**2015 - June [4] (b) (ii) Distinguish between Cost Reduction and Cost Control. (7 marks)**

**Answer:**

**Difference between Cost Reduction and Cost Control:**

<b>Particulars</b>	<b>Cost Reduction</b>	<b>Cost Control</b>
1. Permanence	Permanent, Real and reflects genuine savings in cost.	Represents efforts made towards achievement of pre-determined target or goal.
2. Nature of function	It is a corrective function. It can operate along with an efficient cost control system. This concept Believes that there is always a scope for further reduction in costs.	It is a preventive function, where costs are optimized before these are incurred.

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3. Nature of process	It presumes the existence of concerned potential savings in norms or standards and therefore it is a corrective process.	It does not focus on costs independent of revenue nor considers product attributes as given. It is a holistic control process.
4. Performance evaluation	It is not concerned with maintenance of performance according to standards.	The process involves setting up a target, investigating variances and taking remedial measures to correct them.
5. Nature of Standards	Continuous process of critical examination includes analysis and challenge of standards. It assumes the existence of potential savings in the standards and aims at improving them by bringing out more savings.	It accepts the standards, once they have been fixed. In other words, standards shall remain, as it is.
6. Dynamism	Fully a dynamic approach.	It is a routine exercise and lacks dynamic approach.
7. Coverage	Universally applicable to all areas of business. Does not depend upon standards, though target amounts may be set.	Limited applicability to those items of cost for which standards can be set.
8. Basic approach	It is not concerned with maintenance of performance according to standards. It challenges the very standards set.	It involves setting up a target, ascertaining the actual performance and doing the variance analysis, followed by remedial actions.

**DESCRIPTIVE QUESTIONS**

**2009 - June [1] {C}** (c) Define the following terms (in not more than two sentences):

(v) Value Engineering. **(2 marks)**

**Answer :**

Value Engineering is a function oriented, systematic team approach and study to provide value in a product, system or service. Often, this improvement is focused on cost reduction; however other important areas such as customer perceived quality and performance are also of paramount importance in the value equation.

**2012 - June [4]** Answer the following in brief:

What do you understand by the term “Life Cycle Cost”? **(5 marks)**

**Answer:**

- It focuses on total cost (**Capital cost + revenue cost**) over the products life including design. **CIMA** defines life cycle costing as the practice of obtaining over life time, the best use of physical asset at the lowest cost of entity.
- “The term “**Life Cycle Cost**” has been defined as follows, “It includes the cost associated with acquiring, using, caring for and disposing of physical asset including the feasibility studies, research, design, development, Production, maintenance, replacement and disposal as well as support, training and operating cost, generated by the acquisition use, maintenance and replacement of permanent physical assets.”
  1. Life cycle costing estimates and accumulates costs over a product’s entire life cycle.
  2. The objective is to determine whether costs incurred at different stages of development, (planning, designing & testing) manufacturing (conversion activities) and marketing (advertising distribution, and designing, and testing) manufacturing (conversion activities) and marketing (advertising distribution, warranty) of the product will be recovered by revenue to be generated by the product over its life cycle.
  3. Life cycle costing provides an insight, useful for understanding and managing costs over the life cycle of the product.
  4. In particular it helps to evaluate the viability of the product, decides on pricing of the product at different stage of product life cycle and often helps to estimate the value of the product to its

user.

5. When used in conjunction with target costing, life cycle costing becomes an important tool for cost management.
6. Life cycle costing estimates and accumulates costs over a product's entire life cycle in order to determine whether the profits earned during the manufacturing phase will cover the costs incurred during the pre-and post manufacturing stages.
7. Identifying the costs incurred during the different stages of product's life cycle provides an insight into understanding and managing the costs incurred throughout its life cycle. In particular, Life cycle costing helps management to understand the cost consequences of developing and making a product and to identify areas in which cost reduction efforts are likely to be most effective.
8. Most accounting system report on a period-by-period basis, and products are not monitored over their life cycles. In contrast product life cycle reporting involves tracing costs and revenue on a product-by-product basis over several calendar periods throughout their life cycle.
9. A Typical pattern of cost commitment and cost incurrence during the three stages of a product's life cycle-the planning and design stage, the manufacturing stage and the service and abandonment stage.
10. Committed or locked in cost that have not been incurred but that will be incurred in the future on the basis of decisions that have already been made. Costs are incurred when resource is used or sacrificed.
11. Costing system record costs-only when they been incurred. It is difficult to significantly alter costs after they have been committed. For example the product design specifications determine a product's material and labour inputs and the production process. At this stage costs become committed and broadly determine the future costs that will be incurred at the manufacturing stage.
12. That approximately 80% of a product's costs are committed during the planning and design stage. At this stage product designers determine the product's design and the production process. In contrast the majority of costs are incurred at the manufacturing stage, but they have already become locked in at the planning and design stage and are difficult to alter.



**2013 - Dec [7]** (b) Why 'Lean Accounting' is needed? **(2 marks)**

**Answer :**

'**Lean Accounting**' provides accurate, timely and understandable information that can be used by managers, sales people, operations leaders, accountants, lean improvement teams and other policy makers. The information gives clear insight into the company's performance: both operational and financial. It measures the right things for a company that wants to drive forward with lean transformation.

**2014 - June [7]** (a) What is meant by Business Process Re-engineering (BPR)? How can BPR be applied to an organisation? Give an example of BPR application. **(2 + 6 + 2 = 10 marks)**

**Answer:**

**Business Process Re-engineering:** is a business management strategy, originally pioneered in the early 1990s, focusing on the analysis and design of workflows and processes within an organization. BPR aimed to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors. In the mid-1990s, as many as 60% of the Fortune 500 companies claimed to either have initiated re-engineering efforts, or to have plans to do so.

BPR seeks to help companies radically restructure their organizations by focusing on the ground-up design of their business processes. According to Davenport (1990) a business process is a set of logically related tasks performed to achieve a defined business outcome. Re-engineering emphasized a holistic focus on business objectives and how processes related to them, encouraging full-scale recreation of processes rather than iterative optimization of sub-processes.

#### **An Example of BPR Application**

For example, if a bank customer enters into the bank determined to apply for a loan, apply for an ATM card and open a savings account, most probably must visit three different desks in order to be serviced. When BPR is applied to an organization the customer communicates with only one person, called "case manager", for all three inquiries.

The implementation of "One Stop Shopping" as a major customer service innovation, requires the close coordination with a team of staff assigned to a process powered by IT for exchanging information and documents in order to service the customer's request.

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For instance a customer applying for a loan “triggers” a team of staff assigned to service a loan application. The manager completes an application for a loan in electronic form, which in turn is submitted through the network to the next team member, the credit control director, who examines the credit status of the customer. If the credit status is not satisfactory the rejection of the loan is approved by the credit manager and a rejection form is filled and it is returned to the case manager. The case manager explains to the customer the reason that his application was rejected.

**How can BPR be applied to an organization**

<b>1</b> .	<b>Empowering people</b>	Empowerment means giving people the ability to do their work: the right information, the right tools, the right training, the right environment and the authority they need. Information systems help empower people by providing information, tools and training.
<b>2</b> .	<b>Providing Information</b>	Providing information to help people perform their work is a primary purpose of most information systems although they provide information in many different ways.
<b>3</b> .	<b>Providing Tools</b>	In addition to providing the right information, empowering people means giving them the right tools.
<b>4</b> .	<b>Providing Training</b>	Since information systems are designed to provide the information needed to support desired work practices, they are often used for training and learning. As shown by an expert system and a decision simulator, they sometimes provide new and unique training methods.
<b>5</b> .	<b>Eliminating Unproductive Uses of Time</b>	Information systems can reduce the amount of time people waste doing unproductive work.

6	<b>Eliminating Unnecessary Paper</b>	One common way to improve data processing is to eliminate unnecessary paper. Although paper is familiar and convenient for many purposes, it has major disadvantages. It is bulky, difficult to move from place to place and extremely difficult to use for analysing large amounts of data.
7	<b>Eliminating Unnecessary Variations in the Procedures and Systems</b>	In many companies, separate departments use different systems and procedures to perform essentially similar repetitive processes, such as paying employees, purchasing supplies and keeping track of inventories.
8	<b>Minimizing the Burden of Record Keeping</b>	Data Handling and General Office Work. Since processing data is included in most jobs, improving the way people process data is an obvious place to look for information system applications.

**2015 - Dec [10]** (a) What are the criteria to be maintained by the companies which want to get maximum benefit from 'target costing'?  
(4 marks)

**Answer:**

**The following criteria are to be maintained by the companies who want to get maximum benefit from 'target costing':**

- (i) Assembly-oriented industries, as opposed to repetitive-process industries that produce homogeneous products.
- (ii) Industries involved heavily with the diversification of the product lines.
- (iii) Used technologies of factory automation, including computer-aided design, flexible manufacturing systems, office automation, computer-aided manufacturing etc.
- (iv) Have experienced shorter product life cycles where the pay-back for factor automation typically must be achieved in short-term period (less than eight years).

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- (v) Must develop the system for reducing costs during the planning, design and development stages of a PLC.
- (vi) Able for implementing management methods, such as Just-in-time. Value engineering and Total Quality Control.

**2016 - June [7]** (b) Define the term 'value engineering'. **(2 marks)**

**Answer:**

***Please refer 2009 - June [1] (c) (v) on page no. 23***

**2017 - June [2]** (a) What is Value Chain ? How does it help modern cost management? **(2+4 = 6 marks)**

**2017 - June [2]** (b) (i) What are the problems of Traditional Costing arising out of volume-based cost allocation to products? **(1 mark)**

## PRACTICAL QUESTIONS

**2015 - June [4]** (a) (i) Aadarsh Instruments, located in Ambala, is a medical instrument manufacturing company considered to apply Value Engineering in to the Focus Adjustment Knob in one of their model SL 250 for Slit Lamp in microscope. This microscope has found application in the field of eye inspection. The value engineering analysis may help company in running its export business of medical microscope. This firm is producing different types of microscopes which they export to various countries around the globe. All of the products manufactured here are conforming to the international standards. It is an ISO certified company. The total savings after the implementation of value engineering are as given below:

- Cost before analysis — ₹ 29.99
- Total Cost of Nylon Knob — ₹ 18.40
- Saving per product — ₹ 11.59
- Percentage saving per product — ₹ 38.64%
- Annual Demand of the product — ₹ 8,000
- Total Annual Saving — ₹ 92,720
- Value Improvement — ₹ 62.98%

What are the steps to be followed for doing Value Engineering? How can you conclude the decision on the basis of the above Value Engineering?

**(8 marks)**

**Answer:**

The following are the steps to be used for carrying out the Value Engineering exercise by Aadarsh Instruments in their model SL 250 for Slit Lamp in Microscope for the Focus Adjustment Knob:

- (i) Selection of the Product Plan.
- (ii) Gathering Product Information
- (iii) Functional Analysis
- (iv) Creativity Phase and preparing the work-sheet
- (v) Evaluation Sheet
- (vi) Cost Analysis
- (vii) Result and Conclusion
- (viii) Implementation.

**Conclusion:**

Value Engineering methodology is a powerful tool for resolving system failures and designing improvements in performance of any process, product, service or organization. In the Case Study discussed under the question, we have used the concept of Value Engineering to analyze the Focus Adjustment Knob of SL 250 Slit Lamp Microscope. With a critical evaluation of this study, we have been able to increase the value of the product by substituting another material in place of the one currently in use. The % value improvement is to the tune of 62.98% and the total annual saving has been ₹ 92,720.

The various advantages have been observed in terms of:

- Cost Reduction
- Increase in overall production
- Reduction in man-power
- Reduction in scrap.

Thus the cost has been brought down by a substantial margin and thereby the value of the product has been increased.

**2016 - June [5] {C}** (b) The public sector Bank of India (BOI), which targets to take its business to about ₹ 12 lakhs crore in next five years, mulls to implement Business Process Re-engineering (BPR) initiates to streamline its growing business. Seven consultants, including Ernst & Young, Boston Consulting Group (BCG) and McKinsey, have expressed interest to take up the job of evaluation and restructuring the organizational set-up by using 3Rs Model of BPR. What are the actions and resources to be considered for 3Rs Model of BPR for expecting the

results to BOI?

(6 marks)

**Answer:**

BPR is achieving dramatic performance improvements through radical changes in organizational process, re-architecting of business and management process. It involves the redrawing of organizational boundaries, the reconsideration of jobs, tasks, knowledge and skills. This occurs with the creation and the use of models. In resuming the whole process of BPR in order to achieve the expected results is based on key steps- principles which include 3 ₹ (i.e., re-design, re-tool and re-orchestrate). Each step- principle embodies the actions and resources as presented in below:

Re-design	Re-tools	Re-orchestrate
Simplify	Networks	Synchronies
Standardize	Intranets	Processes
Empowering	Extranets	Information Technology
Employee-ship	Workflow	Human resources
Groupware		
Measurements		

**2017 - June [3]** (b) A2Z p.l.c. supports the concept of zero technology or life cycle costing for new investment decisions covering its engineering activities. The financial side of this philosophy is now well established and its principles extended to all other areas of decision making. The company is to replace a number of its machines and the Production Manager is torn between the Exe Machine, a more expensive machine with a life of 12 years, and the Wye machine with an estimated life of 6 years. If the Wye machine is chosen, it is likely that it would be replaced at the end of 6 years by another Wye machine. The pattern of maintenance and running costs differs between the two types of machine and relevant data are shown below:

	Exe	Wye
Purchase price	₹ 19,000	₹ 13,000
Trade-in value/breakup/scrap	₹ 3,000	₹ 3,000
Annual repair costs	₹ 2,000	₹ 2,600

Overhaul costs (at year 8)	₹ 4,000(at year 4)	₹ 2,000
Estimated financing costs averaged over machine life	10% p.a.	10% p.a.

**Required :** Recommend with supporting figures, which machine to purchase, stating any assumptions made? **(8 marks)**

**2017 - June [4]** (a) SRM Ltd. has developed a new product 'Kent' which is about to be launched into the market and anticipates to sell 80,000 of these units at a sale price of ₹ 300 over the product's life cycle of four years. Data pertaining to product 'Kent' are as follows:

Costs of Design and Development of Moulding Dies and Other tools	₹ 10,25,000
Manufacturing costs	₹ 125 per unit
Selling costs	₹ 12,500 per year + ₹ 100 per unit
Administration costs	₹ 50,000 per year
Warranty expenses	5 replacement parts per 25 units at ₹ 10 per part, 1 visit per 500 units (cost ₹ 500 per visit)

**Required :**

- (i) Compute the product Kent's Life Cycle Cost.
- (ii) Suppose SRM Ltd. can increase sales volume by 25% through 15% decrease in selling price, should SRM Ltd. choose the lower price?

**(8 marks)**

**2017 - June [4]** (b) BCG Manufacturers sell their product at ₹ 1,000 per unit. Their competitors are likely to reduce the price by 15%. BCG Manufacturers want to respond aggressively by cutting price by 20% and expect that the present volume of 150000 units per annum will increase to 200000 units. BCGM want to earn a 10% target profit on sales. Based on a detailed value engineering, the comparative position is given below:

**15.24**■ **Solved Scanner CMA Final Gr.III Paper 15 (New Syllabus)**

<b>Particulars</b>	<b>Existing (₹)</b>	<b>Target (₹)</b>
Direct Material Cost per unit	400	385
Direct Labour Cost per unit	55	50
Direct machinery costs per unit	70	60
Direct Manufacturing expenses per unit	525	425
Manufacturing Overheads		
No. of orders (₹ 80 per order )	22,500	21,250
Testing hours (₹ 2 per hour)	45,00,000	30,00,000
Units reworked (₹ 100 per unit)	12,000	13,000

Manufacturing overheads are allocated using relevant cost drivers. Other operating costs per unit for the expected volume are estimated as follows:

Research and Design	₹ 50
Marketing and Customer Service	₹ 130
	<b><u>₹ 180</u></b>

*Required:*

- (i) Calculate target costs per unit and target costs for the proposed volume showing break up of different elements.
- (ii) Prepare target product profitability statement. **(4+4 = 8 marks)**



**Repeatedly Asked Questions**

No.	Question	Frequency
1	Write Short Notes on Kaizen Costing 11 - Dec [4] (b), 14 - Dec [8] (d), 15 - June [4] (a) (ii)	3 Times
2	Define the term 'value engineering'. 09 - June [1] {C} (v), 16 June [7] (b)	2 Times

**Table Showing Marks of Compulsory Questions**

Year	12 D	13 J	13 D	14 J	14 D	15 J	15 D	16 J	16 D	17 J
Practical								6		
Total								6		