FINAL EXAMINATION
GROUP III
(SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS

DECEMBER 2016

Paper-15 : BUSINESS STRATEGY AND STRATEGIC COST MANAGEMENT

Time Allowed : 3 Hours **Full Marks : 100**

The figures in the margin on the right side indicate full marks.
Answer Question No. 1 in Section A, which is compulsory, carrying 20 marks.
Further, answer any 5 (five) Questions from Section B, each carrying 16 marks.

SECTION – A
(20 MARKS)

1. (a) State whether the following statements are True or False. Give reasoning for your answers. No credit will be given for answers without reasoning. If the statement is False, give the correct statement. 1×5=5

(i) SWOT Analysis is the most renowned tool for audit and analysis of the overall strategic position of the business and its environment.

(ii) Strategic Drift is defined as a subtle and unnecessary shift from an intended course or direction to another one-to-one that is usually undesirable, atleast in a long-term perspective.

(iii) The acronym 'PEST' stands for Planning, Economic, Strategic and technical factors of the external macro-environment.

(iv) A 'Market Signal' is an action by a competitor, which gives direct or indirect indications of its goals, intent, motive or internal situation.

(v) 'Liquidation' is a corporate strategy to increase sales volume from new products and new markets.

(b) Match the statement under Column I with the appropriate statement under Column II:

1×5=5

Column I	Column II
(A) Strategic Benchmarking	(1) Involves analysing outside organizations that are known to be best in class.
(B) Competitive Benchmarking	(2) Focuses on improving specific critical processes and operations.
(C) Process Benchmarking	(3) Business look to benchmark with partners drawn from different business sectors or areas of activity to find ways of improving similar functions or work processes.
(D) Functional Benchmarking	(4) This type of analysis is often undertaken through trade associations or third parties to protect confidentiality.
(E) External Benchmarking	(5) Where business need to improve overall performance by examining long-term strategies and general approaches that have enabled high performers to succeed.

(c) Define the following terms in just one or two sentences: 1×5=5

(i) Enterprise Resource Planning (ERP)
(ii) Business Process Outsourcing (BPO)
(iii) Transfer Price
(iv) Cost Reduction
(v) The Principal Budget Factor

(d) In each of the statements given below, only one of the four alternatives is correct. Indicate the correct answer: 1×5=5

(i) One amongst the following is not included in the Porter's Forces Model. Point out that alternative:
(A) Power of Suppliers
(B) Barriers to Entry
(C) SWOT Analysis
(D) Threat of Substitutes

(ii) A value engineering exercise does not include:
(A) Orientation Phase
(B) Job Plan
(C) Information Phase
(D) Creative Phase

(iii) The assignment problem can be solved by any of the following methods except one. Point out that alternative:
(A) Hungarian Method
(B) Simplex Method
(C) Simulation Method
(D) Transportation Method

(iv) In practice, Process Control Systems can be characterized as one or more of the following forms, excepting one. Point out that alternative:
(A) Discrete
(B) Batch
(C) Algorithmic
(D) Continuous

(v) Requisites for a successful Budgetory Control System includes the following excepting one incorrect alternative. Point out that alternative:
(A) Determination of the objectives
(B) Proper delegation
(C) Good leadership
(D) Flexibility

Answer:

1. (a) (i) True. SWOT Analysis is the most renowned tool for audit and analysis of the overall strategic position of the business and its environment.

(ii) True. Strategic Drift is defined as a subtle and unnecessary shift from an intended course or direction to another one-to-one that is usually undesirable, atleast in a long-term perspective.

(iii) False. The acronym "PEST" stands for Political, Economic, Social and technological factors of the external macro-environment.

(iv) True. A "Market Signal" is an action by a competitor, which gives direct or indirect indications of its goals, intent, motive or internal situation.

(v) False. "Diversification" is a corporate strategy to increase sales volume from new products and new markets.

(b)
A	-	5
B	-	4
C	-	2
D	-	3
E	-	1

(c) (i) ERP attempts to integrate all departments and functions across a company, into a single computer system that can serve all those different department's particular needs.

(ii) BPO refers to off-shoring certain areas of work/processes to organization, who have the requisite infrastructures, facilities and expertise.

(iii) Transfer Price is the price of one segment (sub-unit, department, division etc.,) of an rganization charges for a product or service supplied to another segment of the same organization.

(iv) Cost Reduction is the permanent reduction in the unit cost of goods or, services without affecting their quality or suitability for their intended use.

(v) The Principal Budget Factor is the factor, which acts as an over-riding limitation on the activities of the organization. e.g., sales, production capacity, finance, R/M constraint, labour, etc,

(d) (i) - c
(ii) - b
(iii) - c
(iv) - c
(v) - c

SECTION – B

Answer any 5 (five) questions from this section. Each question carries 16 marks.

2. (a) What do you mean by the term 'Business Intelligence'? State its main functions. Why it is necessary? 2+2+2=6

(b) Define 'Logical Incrementalism'. Describe the major steps (or characteristics) involved when it is used for strategy development. 2+8=10

Answer:

2. (a) "Business Intelligence" (BI) represents the tools and systems that play a key role in the strategic planning process of a company. These systems allow the company to gather, store, access and analyze corporate data to aid in decision making. Generally these systems will illustrate business intelligence in the areas of customer profiling, customer support, market research, market segmentation, product profitability, statistical analysis, inventory and distribution analysis to name a few.

Main Functions of Business Intelligence are:

- Routine information Delivery through reports or dashboards
- Supporting Decision-making through adhoc query and analysis

The necessities for Business Intelligence:

Businesses or organizations are constantly faced with changing circumstances and challenges. Nothing remains static for long. Because of this changing environment, businesses and organizations need to be continually making decisions to adjust their actions to grow profitably or enhance the services they provide.

BI can help here on two counts by utilising the data held within the organization, trusting

that it is reasonably clean and accurate:
- Establishing Early Warning Systems and Detection of trends
- Finding relevant patterns and insights.

(b) **Logical Incrementalism** is a philosophy of achieving broad organizational goals by making strategic decisions in small steps. The small steps to resolve conflicting views of participants and reduce risk by capitalizing on knowledge that is gained during the process. Logical Incrementalism benefits from flexibility but is likely to be time-consuming and inefficient.

Characteristics of Logical Incrementalism:
The following are the major characteristics of Logical Incrementalism when it is involved for strategy development:
- **Environmental Uncertainty**: The Managers realize that they cannot do away with the uncertainty of their by relying on analysis of historical data or predicting how it will change. Rather, they try to be sensitive to environmental signals by encouraging constant environmental scanning through the organization.
- **Generalised views of Strategy:** Managers have a generalized rather than specific view of where they want the organization to be in the future and try to move towards this position incrementally. There is also a reluctance to specify precise objectives too early as this might stifle ideas and prevent innovation and experimentation.
- **Experimentation:** Managers may seek to develop strong secure but flexible core business. They will then build on the experience gained in that business to inform decisions both about its development and experimentation with 'side-bet'bet ventures. Commitment to strategic options may therefore be tentative to the early stages of strategy development. Such experiments are not the sole responsibility of the top management.
- **Coordinating emergent strategies:** Top managers may then utilize a mix of formal and informal social and political process to draw together an emerging pattern of strategies from these sub-systems. These may then be formed into coherent statements of strategy for stake-holders that need to understand the organization's strategy.

3. (a) List the merits and demerits of Benchmarking. 3+5=8
(b) Write a brief note on 'Retrenchment Strategy'. When 'Retrenchment Strategy' is ideally adopted? 4+4=8

Answer:

3. (a) **Merits of Benchmarking:**
The important merits of Benchmarking are:
- Benchmarking increases customer satisfaction.
- It leads to significant cost savings and improvements in products and services.
- It helps in improving Strategic Planning by providing assessment of strenths and weaknesses of current process.

Demerits of Benchmarking:
The important demerits of Benchmarking are:
- It increases the diversity of information which must be monitored by the management. This increases the potential for information overload.
- It may reduce a managerial motivation if they are compared with a better resourced rival.
- There is a danger that confidentiality of data will be compromised.
- It encourages management to focus on increasing the efficiency of their existing

business instead of developing new lines of business. Benchmarking is the refuge of the manager who is afraid of the future.

- Successful benchmarking firms may find that they are later overloaded with requests for information from much less able firms from whom they can learn very little.

(b) **Retrenchment Strategies:** The corporate strategy of retrenchment is followed when an organization aims at contraction of its activities through a substantial reduction or elimination of the scope of one or more of its businesses in terms of their respective customer groups, customer functions or alternative technologies-either singly or jointly-in order to improve its overall performance.

Retrenchment involves total or partial withdrawal from a customer group, customer function or use of an alternative technology in one or more of a firm's businesses, as can be seen from the situations given below:

- A pharmaceutical firm pulls out from retail selling to concentrate on institutional selling in order to reduce the size of its sales force and increase marketing efficiency.
- A corporate hospital decides to focus only on specialty treatment and realize higher revenues by reducing its commitment to general cases which are typically less profitable to deal with.
- A training institution attempts to serve a larger clientale through the distance learning system and discard its face-to-face interaction methodology of training in order to reduce its expenses and use the existing facilities and personnel more efficiently.

In this manner, retrenchment attempts to 'trim the fat' and results in a 'slimmer' organization, bereft of unprofitable customer groups, customer functions or alternative technologies.

Retrenchment strategy is adopted because:

- The management no longer wishes to remain in business either partly or wholly, due to continuous losses and the organization becoming unviable.
- The environment faced is threatening.
- Stability can be ensured by reallocation of resources from unprofitable to profitable businesses.
- Complicated situations generally require complex solutions.

4. (a) What are the reasons for criticizing the use of B C G Matrix? 8
(b) What is 'Collaboration'? List the different types of competitive collaboration. Why collaborate? 2+4+2=8

Answer:

4. (a) The BCG Matrix is criticized for the following reasons:

- BCG Matrix does not talk about profitability at all.
- It fails to correctly define market share and market growth.
- It ignores competition factors and trends in market.
- It considers only two factors viz., market growth rate and market share, ignoring all other factors.
- It does not say how long a product will continue in each phase.
- It fails to consider globalization factor, where markets are not limited to a particular area or place.
- It encourages strategy development for general use rather than specific criteria.
- It implies assumptions about the mechanism of corporate financing and market behaviour that are either unnecessary or false.
- It overlooks other important strategic factors that are a function of the external

competitive environment.

- It does not provide direct assistance in company with different businesses in terms of investment opportunities.
- Its focus is on cash flow, whereas organizations may be more interested in ROI.
- It does not depict the position of business that are about to emerge as winner because the product is entering the takeoff stage.
- It neglects small competitors that have fast growing market shares.
- It fails to consider that, a business with a low market share can be profitable too.
- A high market share does not necessarily lead to profitability all the time.
- Market growth is not the only indicator for attractiveness of a market.

(b) **Collaboration**: is a strategic alliance typically between two firms with the goal of providing mutual benefit for each firm. Collaborating with your competitors is like a double-edged sword. Sharing between firms is a smart strategy as long as the relationship is give-and-take and is one that will benefit both the parties without compromising each of the firm's competitive position in the industry. Firms must be careful in what information is shared across this delicate communication trail.

Different types of Competitive Collaboration:

The following are the different types of Competitive Collaboration:

(i) Joint Ventures
(ii) Outsourcing Agreements
(iii) Product Licensing
(iv) Cooperative Research

Why Collaborate?

- To gain technological advancement at a relatively low cost.
- To gain market access at a low cost
- To gain insights into the partner's business practices and strategies.
- To strengthen competitive advantages or core competencies.
- For developing benchmarks through examination of the practices of the-alliance firm.

5. (a) A company is planning a new product. Market Research Information suggests that the product should sell 10000 units at ₹ 21.00/unit. The company seeks to make a mark-up of 40% product cost. It is estimated that the life-time costs of the product will be as given below:

(i) Design and development costs ₹ 50.000
(ii) Manufacturing costs ₹ 10/unit
(iii) End of life costs ₹ 20,000

The company estimates that if it were to spend an additional ₹ 15,000 on design, manufacturing costs/unit could be reduced.

Required:

(I) What is the target cost of the product? 2
(II) What is the original life-cycle cost/unit and is the product worth making on that basis? 1+1
(III) If the additional amount were spent on design, what is the maximum manufacturing cost/unit that could be tolerated if the company is to earn its required mark-up? 4

(b) The data on the running costs/year and the resale price of Equipment A, whose purchase price is ₹ 2,00,000 are as follows:

Year	1	2	3	4	5	6	7
Running cost (₹)	30,000	38,000	46,000	58,000	72,000	90,000	1,10,000

Resale value (₹)	**1,00,000**	**50.000**	**25,000**	**12,000**	**8,000**	**8,000**	**8,000**

(i) What is the optimum period of replacement? 2

(ii) When Equipment A is 2 years old, Equipment B, which is a new model for the same usage is available. The optimum period for replacement is 4 years with an average cost of ₹ 72,000. Should Equipment A be changed with Equipment B? If so, when? 4+2

5. (a) The target cost of the product can be calculated as per below:

(I) The Target Cost	+	Mark-up	=	Selling Price
100%		40%		140%
₹15		₹6		₹21

Hence the Target Cost of the Product=₹ 15.

(II) The original life cycle cost per unit = (₹50,000 + (10,000×₹ 10) +₹20,000) /10,000
=(₹ 50,000 + ₹ 1,00,000+ ₹20,000) /I 0,000
= ₹ 1,70,000/10,000 = ₹ 17.

This cost/unit is above the target cost of ₹ 15 per unit. Hence the product is **not worth making.**

III. Maximum total cost/unit = ₹ 15. Some of this will be caused by the design and end of life costs:
(₹50,000 + ₹15,000 +₹20,000) /I 0,000 = ₹85,000 / 10,000 = ₹8.50.

Therefore, the maximum manufacturing cost per unit would have to fall from ₹ 10 to (₹ 15 - ₹ 8.50) =₹6.50.

(b) (i) The calculations of average cost per year during the life of the machine :

Year of Service (1)	Running Cost (₹) (2)	Cumulative Running cost (₹) (3)	Resale Price(₹) (4)	Cumulative Depreciation Cost (₹) (5)=₹2Lakhs-(4)	Cumulative Total Cost (₹) (6)=(3)+(5)	Average Cost /Year (7) = (6)/(1)
1	30,000	30,000	1,00,000	1,00,000	1,30,000	1,30,000
2	38,000	68,000	50,000	1,50,000	2,18,000	1,09,000
3	46,000	1,14,000	25,000	1,75,000	2,89,000	96,333
4	58,000	1,72,000	12,000	1,88,000	3,60,000	90,000
5	72,000	2,44,000	8,000	1,92,000	4,36,000	**87,200**
6	90,000	3,34,000	8,000	1,92,000	5,26,000	87,667
7	1,10,000	4,44,000	8,000	1,92,000	6,36,000	90,857

As the average cost/ year of ₹ 87,200 is minimum in the 5th Year, so A should be replaced at the end of 5th Year.

(ii) Given, the optimum period for replacement of B is 4 years with an average cost of ₹ 72,000. As Minimum average cost of B is lower than the minimum average cost of A, hence A should be replaced by B. As A is two years old, so the total cost per year of A from 3rd year are as follows:

Year of service	Total cost per year (₹)
3	2,89,000-2,18,000 = 71,000
4	3,60,000-2,89,000 = 71,000
5	4,36,000-3,60,000=76,000
6	5,26,000-4,36,000=90,000

7	6,36,000-5,26,000=1,10,000

As total cost per year of A is higher in 5th Year, than the minimum average cost of B (72,000), so A should be replaced at the end of 4th Year.

6. (a) Four Products A. B, C and D have ₹ 5, ₹ 7, ₹ 3 and ₹ 9 profitability respectively. First type of material (limited supply of 800 kgs.) is required by A, B, C and D at 4 kgs., 3 kgs., 8 kgs. and 2 kgs. respectively per unit. Second type of material has a limited supply of 300 kgs. and is required by A, B. C and D at 1 kg., 2 kgs.. 0 kg. and 1 kg. respectively per unit. Supply of other type of materials consumed is not limited. Machine hrs. available are 500 hrs. and the requirements are 8, 5, 0, 4 hours for A, B, C and D each per unit. Labour hrs. are limited to 900 hrs. and the requirements are 3, 2, 1 and 5 hours for A, B, C and D respectively. How should the firm approach so as to maximize its profitability? Formulate this as a LPP. You are not required to solve the LPP. 8

(b) After observing heavy congestion of customers over a period of time in a petrol station, Mr. Pinto has decided to set up a petrol pump facility on his own in a nearby site. He has compiled statistics relating to the potential customer arrival pattern and on service pattern as given below. He has also decided to evaluate the operations by using the Monte-carlo simulation technique.

Arrivals		Services	
Inter-arrival time (minutes)	**Probability**	**Inter-arrival time (minutes)**	**Probability**
2	**0.22**	**4**	**0.28**
4	**0.30**	**6**	**0.40**
6	**0.24**	**8**	**0.22**
8	**0.14**	**10**	**0.10**
10	**0.10**		

Assume:

(i) The clock starts at 8.00 hours.

(ii) Only one pump is set up.

(iii) The following 12 Random Numbers are to be used to depict the customer arrival pattern: 78, 26, 94, 08, 46, 63, 18, 35, 59, 12, 97 and 82.

(iv) The following 12 Random Numbers are to be used to depict the service pattern: 44, 21, 73, 96, 63, 35, 57, 31, 84, 24, 05 and 37.

You are required to find out the

(i) Probability at the pump being idle and

(ii) Average time spent by a customer waiting in queue. 4+4=8

Answer:

6. (a) Linear Programming Problem:

The given information is tabulated as below:

Products	A	B	C	D
Profitability/unit (₹)	5	7	3	9
Material requirement /unit (kg)				
First Type (Total 800 kg)	4	3	8	2
Second Type (Total 300 kg)	1	2	0	1
M/c Hrs. requirement /unit (Total 500 Hrs)	8	5	0	4
Labour Hrs. requirement/unit(Total 900 Hrs)	3	2	1	5

Taking X_1, X_2, X_3 and X_4 as optimal of A, B, C and D respectively,
Linear Programming Problem (LPP)

Maximize Objective Function (Total Profit):

$Z= 5X_1+7X_2+3X_3+9X_4$

Subject to

$4X_1+3X_2+8X_3+2X_4 \leq 800$ (Material No-1 constraint)
$1X_1+2X_2+0X_3+1X_4 \leq 300$(Material No-2 constraint)
$8X_1+5X_2+0X_3+4X_4 \leq 500$ (M/c Hrs. constraints)
$3X_1+2X_2+1X_3+5X_4 \leq 900$ (Labour Hrs. constraints)
X_1, X_2, X_3 and $X_4 \geq 0$(Non-negativity constraints).

(b)

Inter-arrival time				Service time			
Minutes	Probability	Cumulative Probability	Range	Minutes	Probability	Cumulative Probability	Range
2	0.22	0.22	00-21	4	0.28	0.28	00-27
4	0.30	0.52	22-51	6	0.40	0.68	28-67
6	0.24	0.76	52-75	8	0.22	0.90	68-89
8	0.14	0.90	76-89	10	0.10	1.00	90-99
10	0.10	1.00	90-99				

Sl. No.	Random No. for Inter-arrival	Inter Arrival Time (mins.)	Entry time in queue	Service Start Time	Random No. for Service	Service Time (mins)	Service End Time	Waiting Time of Customer	Idle time
1	78	8	8.08	8.08	44	6	8.14	-	8
2	26	4	8.12	8.14	21	4	8.18	2	-
3	94	10	8.22	8.22	73	8	8.30	-	4
4	08	2	8.24	8.30	96	10	8.40	6	-
5	46	4	8.28	8.40	63	6	8.46	12	-
6	63	6	8.34	8.46	35	6	8.52	12	-
7	18	2	8.36	8.52	57	6	8.58	16	-
8	35	4	8.40	8.58	31	6	9.04	18	-
9	59	6	8.46	9.04	84	8	9.12	18	-
10	12	2	8.48	9.12	24	4	9.16	34	-
11	97	10	8.58	9.16	05	4	9.20	18	-
12	82	8	9.06	9.20	37	6	9.26	14	-
							Total Time	140	12

Average waiting time spent by the customer = 140/12 =11.67 minutes.
Probability of idle time of petrol station= 12/86 =0.1395.

7. (a) What is Product Life Costing? State its characteristics and benefits? 2+(2+2)=6

(b) A company has developed a special purpose Electronic Security Device and once introduced in the market, the same is expected to have a life-cycle of 3 years from the time of its introduction in the market before the device becomes obsolete due to technological advancement of other competitive products.
You have been asked by the company to prepare a Product Life-Cycle Budget.

	Year 1	Year 2	Year 3

No. of units to be manufactured and sold	**50,000**	**2,00,000**	**1,50,000**
Price per device (₹)	**500**	**400**	**350**
R & D and Design Cost (₹)	**9,00,000**	**1,00,000**	**Nil**
Production Cost:			
Variable Cost per device (₹)	**200**	**159**	**150**
Fixed Cost (₹)	**70,00,000**	**70,00,000**	**70,00,000**
Marketing Cost:			
Variable Cost per device (₹)	**100**	**70**	**60**
Fixed Cost (₹)	**30,00,000**	**25,00,000**	**25,00,000**
Distribution Cost:			
Variable Cost per device (₹)	**50**	**50**	**50**
Fixed Cost (₹)	**10,00,000**	**10,00,000**	**10,00,000**

(i) Prepare the Budgeted Life-Cycle Operating Profit. 5

(ii) It has been further indicated that if a discount of 10% is given to customer, the unit to be sold per year will increase by 5%. Would you recommend the introduction of such discount? 4+1=5

Answer:

7. (a) Product Life Cycle Costing (PLCC) is an approach used to provide a long term picture of product line, profitability, feedback on the effectiveness of the life cycle planning and cost data to clarify the economic impact on the alternative, chosen in the design, engineering phase etc.,

Characteristics of PLCC:

(i) involve tracing of costs and revenues of each product over the several calender periods throughout their entire life cycle.
(ii) Traces research, design and development costs and total magnitude of these costs for each individual product and compared with product revenue.
(iii) Assists report generation for costs and revenues.

Benefits of PLCC:

(i) Results in earlier actions to generate revenue or to lower costs than otherwise might be considered.
(ii) Ensures better decision from a more accurate and realistic assessment of revenues and costs, atleast within a particular life cycle stage.
(iii) Promotes long-term rewarding.
(iv) Provides an overall framework for considering total incremental costs over the life span of the product.

(b)

A company
PREPARATION OF BUDGETED LIFE CYCLE OPERATING PROFIT

₹ In Lakh.

	Year I	Year II	Year III	Life Cycle
Sales Revenue	250.00	800.00	525.00	1,575.00
R&D, Design Cost	9.00	1.00	Nil	10.00
Production Cost				
Variable cost	100.00	318.00	225.00	643.00
Fixed cost	70.00	70.00	70.00	210.00
Marketing Cost				

Variable cost	50.00	140.00	90.00	280.00
Fixed Cost	30.00	25.00	25.00	80.00
Distribution cost:				
Variable cost	25.00	100.00	75.00	200.00
Fixed Cost	10.00	10.00	10.00	30.00
	294.00	664.00	495.00	1453.00
Operating profit	(44.00)	136.00	30.00	122.00

Operating results .if discount is given:

WN: Revised sales revenue	Total units x SP(₹)	Total (₹Lakh)
Year I	50,000+5%=52,500x450	236.25
Year II	2,00,000+5%=2,10,000x360	756.00
Year III	1,50,000+5%=1,57,500x315	496.12
		1,488.37

BUDGETED LIFE CYCLE PROFIT
(With discount of 10% to customers and sales increase by 5%)

(in ₹ Lakh)

	Year I	Year II	Year III	Total Life Cycle
Sales Revenue	236.25	756.00	496.12	1,488.37
R&D, Design	9.00	1.00	Nil	10.00
Production Cost				
Variable cost	105.00	333.90	236.25	675.15
Fixed cost	70.00	70.00	70.00	210.00
Marketing Cost				
Variable cost	52.50	147.00	94.50	294.00
Fixed Cost	30.00	25.00	25.00	80.00
Distribution cost:				
Variable cost	26.25	105.00	78.75	210.00
Fixed Cost	10.00	10.00	10.00	30.00
	302.75	691.90	514.50	1509.15
Operating profit	(66.50)	64.10	(18.38)	(20.78)

The second alternative is not acceptable, as that would result in overall loss during the life cycle.

8. (a) What is 'Value Engineering'? List some of the common reasons for poor value. 2+6=8
(b) State briefly the role of Computer in solving OR Problems. 8

Answer:

8. (a) Value Engineering: Value Engineering is an organised/systematic approach directed at analyzing the function of systems, equipment, facilities, services and supplies for the purpose of achieving their essential functions at the lowest life-cycle cost consistent with required performance, reliability, quality and safety. In other words, it is a systematic approach to analyzing the functional requirements of products or services for the purposes of achieving the essential functions at the lowest total cost. It is an effective problem-solving technique. It is essentially a process which uses function analysis, team-work and creativity to improve value.

The following are some of the more common reasons for poor value:

(i) Lack of information, usually caused by a shortage of time. Too many decisions are based on feelings rather than facts.
(ii) Wrong beliefs, insensitivity to public needs or unfortunate experience with products or processes used in unrelated prior applications.
(iii) Habitual thinking, rigid application of standards, customs and tradition, without consideration of changing function, technology and value.
(iv) Risk of personal loss, the ease and safety experienced in adherence to established procedures and policy.
(v) Reluctance to seek advice, failure to admit ignorance of certain specialized aspects of project development.
(vi) Negative attitudes, failure to recognize creativity or innovativeness.

(b) Role of Computers in solving Operation Research Problems:

(i) The Operations Research Problems are time consuming and involve tedious computations. Even a simple problem with a few variables take a long time to solve manually and even by a hand calculator. The advent of computers has accelerated the wide use of Operations Research techniques for solving complex business problems faced by managers and administrators in business and government.
(ii) The automation of computational algorithm allows decision-makers to concentrate on problem's formulation and the interpretation of the solutions.
(iii) Major computer manufacturers and vendor have developed software packages for the various computer systems providing computational support for problems to be solved by the application of OR techniques.
(iv) Some academic departments in different universities have also produced software packages for solving various OR problems.
(v) Computer manufacturers like IBM, CDC, Honeywell, UNIVAC, ICL etc., have invested substantial amount in developing software programs for solving the optimizing, scheduling, inventory, simulation and other OR problems.
(vi) Large scale simulations are possible only through computers by using GPSS software packages.

Using OR techniques including LPP, Discrete Event Simulation and Queing theory, Organizational leaders can make high quality decisions by using the computers. In today's cut-throat competitive business scenario, business managers are required to take Do or Die decisions. For this, a computer will be a very treasured possession in the hands of today's managers.