Paper 15 - Business Strategy & Strategic Cost Management

Section A

Question No. 1 & 2 are compulsory. Answer any two questions from the rest.

1. The sequence of strategies suggested by Ansoff is industry specific. Develop this sequence for two diverse industries like Insurance and Colour TVs keeping in mind the Indian market. (15)

Answer.

The Ansoff's Matrix identifies 4 different kinds of Product market strategy that an Industry should adopt. These are Market Penetration, Market development, Product development and Diversification.

Market penetration involves trying to milk more from the existing products and existing markets. If the market as a whole is growing, this might appear a fairly low risk strategy to adopt. Where the market is stagnant, market penetration might involve market share at the expense of other players in the field.

Market Development uses existing products in new markets. This strategy might be attractive if the unit has to achieve high sales volumes-to utilise capacity efficiently. Product Development involves offering new products to the existing markets.

Diversification involves moving into new market with new product.

Ansoff model is a framework for discussing alternative directions. It is a model for identifying for product-market opportunities. There is no criterion for any choice amongst the strategies suggested by Ansoff. There is nothing to stop a company carrying out all the four strategies simultaneously, provided it has the resources. For example, a firm can pursue simultaneously a penetrating strategy in its existing markets as well as diversifying into new ones.

Insurance Sector: Insurance Sector is a on-going growing industry. Hitherto 'Life insurance Corporation of India' (LIC) had been monopolising this sector. But under the changed scenario, following liberalisation & Globalisation, a number of new players have come in and are posing a real threat to the Industry's Leader viz., LIC.

Further the market size of this Industry is very huge. There is lot of scope to develop many new products. The market is at a developing stage, with the Industry spreading out mostly across the urban and middle class income group.

The sequence of strategies as suggested by Ansoff for the Insurance Sector should be-

- Product Development
- Market Development
- Penetration and finally
- Diversification.

Product Development: Product Development involves offering new products to the existing markets. The scope for Product Development in this sector is tremendous and this should be accorded the top most priority. A lot of new ideas are fast filtering into our country from different countries abroad.

LIC should offer attractive new policies to its existing millions of clientele and thereby retain its number uno status.

Market Development: Market Development is taking place because of the huge market size and the unawareness of people across the country, especially in rural areas about the product.

Market penetration: We are already noticing the huge market penetration that is taking place in the Insurance Sector. Market players are slashing the premium and are making attractive offers-specially to the rural folk by undertaking big publicity campaigns.

Diversification: Insurance biggies like Pru ICICI, Bajaj Aliianz , who are the two top private sector players have already diversified into new areas like Mutual Fund etc. ,

To sum up, Ansoffs model has a lot of relevance for the Insurance Sector. All the strategies., as suggested by Ansoff, are being put into play, as per the sequence suggested above.

Colour TV industry:

Colour TV came into the market for the first time during The Asian Games, 1984. Before that only Black and White TVs were only available. In the language of Strategic Management, we can say that the product 'Black& white TVs' were in the Maturity Phase of Product Life Cycle, whereas the Colour TVs had just been only in the 'Introduction ' Phase.

The sequence of strategies as suggested by Ansoff for the Colour TV Industry should be-The sequence of strategies as suggested by Ansoff for the Insurance Sector should be-

- Market Development
- Penetration
- Product Development and
- Diversification.

Market Development: The Market Development for the Colour TVs industry has been growing exponentially in view of a no. of new TV channels that are entering the Indian market specialising in different areas like Sports channel, Entertainment channel etc. , With the introduction of some populist measures taken by some state Government in the«south, by distributing TV s for the poor and the under-privileged communities the market has suddenly got 'heated up'. Due to the stiff competition, the prices have also tumbled down for a Colour TV. The market for Black& White TV has almost come to a 'Zero' level. Every one are now going crazy for a Colour TV.

Market penetration: Market Penetration is going on at a feverish pitch, due to the emerging new technology like LCD, Plasma etc.

Product Development: Product Development has assumed a special significance for the Colour TV industry. There is a huge stress on quality. The final result as a consequence is a squeeze on profit margin, due to market penetration.

Diversification: Diversification to other areas related to shopping goods are taking place. Many players are moving into new products like Home Theatres, Refrigerators etc.

Summing up, Ansoffs-model has a lot of relevance for the Colour TV industry. All the strategies, as suggested by Ansoff, are being put into play, as per the sequence suggested above.

2. (a) A company is currently involved in negotiations with its union on the upcoming wage contract. With the aid of an outside mediator, the table below was constructed by the management group. The pluses are to be interpreted as proposed wage increases while a minus figure indicates that a wage reduction is proposed, the mediator informs the management group that he has been in touch with the union and that they have constructed a table that is comparable to the table developed by the management. Both the company and the union must decide on an overall strategy before negotiations begin. The management group understands the relationship of company strategies to union strategies in the following table but lacks specific knowledge of game theory to select the best strategy (or strategies) for the firm. Assist the management on this problem. What game value and strategies are available to the opposing groups ? (10)

Conditional costs to company (in lac ₹)

Company strategies	Union strategies			
	U_1	U_2	U_3	U_4
C_1	+ 0.25	+ 0.27	+ 0.35	- 0.02
C_2	+ 0.20	+ 0.16	+ 0.08	+ 0.08
C_3	+ 0.14	+ 0.12	+ 0.15	+ 0.13
C_4	+ 0.30	+ 0.14	+ 0.19	0.00

Answer.

Since the company represents the 'minimising player' and the union the ' maximizing player,' we shall recast the pay-off matrix (by taking transpose of the given matrix) as follows :

Company strategies	Union strategies			
	C_1	C_2	C_3	C_4

U_1	0.25	0.20	0.14	0.30
U_2	0.27	0.16	0.12	0.14
U_3	0.35	0.08	0.15	0.19
U_4	- 0.02	0.08	0.13	0.00

This game has no saddle point.
We observe that all entries in the third row of this matrix are greater than, or equal to, the corresponding entries in the fourth row. Thus, fourth row is dominated by the third row and hence can be deleted. Deleting it we get,

Company strategies	**Union strategies**			
	C_1	**C_2**	**C_3**	**C_4**
U_1	0.25	0.20	0.14	0.30
U_2	0.27	0.16	0.12	0.14
U_3	0.35	0.08	0.15	0.19

In this matrix, the first column is dominated both by the second and the third columns; and the fourth column is dominated by the third column. Deleting the dominated columns, the matrix is reduced to the following :

Company strategies	**Union strategies**	
	C_2	**C_3**
U_1	0.20	0.14
U_2	0.16	0.12
U_3	0.08	0.15

Here, the second row is dominated by the first. Deleting this row we get the following matrix of the order 2 x 2, and obtain the solution to the game analytically.

Company strategies	**Union strategies**	
	C_2	**C_3**
U_1	0.20	0.14
U_3	0.08	0.15

If x be the probability with which the union adopts policy U_1 and y be the probability of adoption of C_2 by the company, we have

$$x = \frac{0.15 - 0.08}{(0.20 + 0.15) - (0.08 + 0.14)} = \frac{7}{13};$$

$$y = \frac{0.15 - 0.14}{(0.20 + 0.15) - (0.08 + 0.14)} = \frac{1}{13};$$

$$V = \frac{0.20 \times 0.15 - 0.08 \times 0.14}{(0.20 + 0.15) - (0.08 + 0.14)} = \frac{0.0188}{0.1300} = \frac{47}{325}$$

Thus, optimal strategy for the company is (0, 1/13, 12/13, 0); for the union it is (7/13, 0, 6/13, 0) and the game value is 47/325 (representing increased wages).

(b) Convert the following game theory game problem, involving two-person 'zero-sum' game in to a linear programming problem :

Player A	**Player B**			
	B_1	**B_2**	**B_3**	**B_4**
A_1	**8**	**20**	**-3**	**1**

A_2	**6**	**25**	**4**	**2**
A_3	**0**	**-8**	**12**	**9**
A_4	**16**	**9**	**21**	**0**

Don't solve. **(5)**

Answer.

Since two of the entries in the payoff matrix are negative, we add 8 (absolute value of the smallest negative payoff) to each element of the pay-off matrix so that all the elements of the revised payoff matrix are non-negative. The revised payoff matrix is given below :

Player A	**Player B**			
	B_1	**B_2**	**B_3**	**B_4**
A_1	16	28	5	9
A_2	14	33	12	10
A_3	8	0	20	17
A_4	24	17	29	8

Now, let p_1, p_2, p_3 and p_4 represent the probabilities with which A chooses strategies 1, 2, 3, and 4 respectively, while q_1, q_2, q_3 and q_4 be the probabilities in respect of B choosing strategies 1,2, 3 and 4 such that :

$p_1 + p_2 + p_3 + p_4$ and $q_1 + q_2 + q_3 + q_4 = 1$

If the value of the game is V, then for player A, we must have

$16p_1 + 14p_2 + 8p_3 + 24p_4 \geq V$, $28p_1 + 33p_2 + 17p_4 \geq V$

$5p_1 + 12p_2 + 20p_3 + 29p_4 \geq V$ and $9p_1 + 10p_2 + 17p_3 + 8p_4 \geq V$

And for player B, we shall have

$16q_1 + 28q_2 + 5q_3 + 9q_4 \geq V$, $14q_1 + 33q_2 + 12q_3 + 10q_4 \geq V$

$8q_1 + 0q_2 + 20q_3 + 17q_4 \geq V$, and $24q_1 + 17q_2 + 29q_3 + 8q_4 \geq V$

Similarly, from A's viewpoint, the problem is :

Maximize $1/V = x_1 + x_2 + x_3 + x_4$

Subject to the constraints

$16x_1 + 14x_2 + 8x_3 + 24x_4 \geq 1$, $28x_1 + 33x_2 + 17x_4 \geq 1$,

$5x_1 + 12x_2 + 20x_3 + 29x_4 \geq 1$, and $9x_1 + 10x_2 + 17x_3 + 8x_4 \geq 1$

$x_1, x_2, x_3, x_4 \geq 0$ and $x_i = p_i/V$ $(i = 1, 2, 3, 4)$

Similarly, from B's viewpoint, the problem is :

Maximize $1/V = y_1 + y_2 + y_3 + y_4$

Subject to the constraints

$16y_1 + 28y_2 + 5y_3 + 9y_4 \leq 1$, $14y_1 + 33y_2 + 12y_3 + 10y_4 \leq 1$

$8y_1 + 0y_2 + 20y_3 + 17y_4 \leq 1$, and $24y_1 + 17y_2 + 29y_3 + 8y_4 \leq 1$

$y_1, y_2, y_3, y_4 \geq 0$ and $y_j = q_j/V$ $(j = 1, 2, 3, 4)$

3. (a) What advantages does the GE matrix model have over the BCG matrix? **(7)**

Answer.

The GE Business Screen:

The GE Business Screen is an advanced portfolio matrix developed by General Electric for its use in determining which SBUs or major products to keep in GE's portfolio and which to delete. The GE matrix can also be used to evaluate possible acquisitions, mergers, and/or

product development.

The GE matrix eliminates the majority of the inherent weaknesses of the BCG matrix by employing composite measures of business strengths and industry attractiveness. With the GE matrix, strategist may plot a business in any of nine positions, opposed to the BCG's four positions. GE's matrix also includes a corresponding increase in the number of advisable strategies identified. The GE matrix consists of nine cells of different colours that indicate appropriate strategies for different businesses or products. The vertical axis represents industry attractiveness while the horizontal axis represents the strength of the business or product. Both axes have high, medium, and low locations.

Within the GE matrix, there are three grids labelled G, R, and Y. If firm product under analysis falls in an intersection within Grid G, or "green" cell, then invest-and-grow strategy should be used. An organisation or product falling in an intersection within Grid R, or "red" cell, should either (1) be harvested and ultimately divested or (2) employ retrenchment and turnaround strategy, curtail or reduce investment in the business, and extract much possible before the business is divested. Grid Y portrays a firm that intersects in "yellow" cell, where the firm or product has low business strengths but high industry attractiveness. Here, the organisation should employ selectivity/earnings strategy. If this demonstrates good earning potential for the business, it should received invest-and-grow strategy and be monitored continually. If it does not prove worthwhile, it should be divested.

Business strength (controllable dimensions):

The ability of the company to compete effectively in its industry or market includes knowledge about industry, customers, market share, financial performance, quality of its marketing personnel, and production capacity.

Market or industry attractiveness (uncontrollable dimension):

These include market growth rate, competitive industry factors, legal constraints, plus opportunities and threats from the SBU's external environment.

G High Priority for Investment
Y Moderate Priority for Investment
R Low Priority for Investment

G	G	Y
G	Y	R
Y	R	R

The GE model has several advantages over the BCG matrix.

First, it allows for intermediate rankings between high and low. Second, it incorporates a variety of strategically relevant variables. Third, it emphasises channeling corporate to those businesses that combine market attractiveness with business strength.

The GE model shares some weaknesses with the BCG model.

It yields only general prescriptions opposed to specific strategies. Although strategy such as "hold and maintain" may be useful a starting point, specific approaches to implement the strategy remain wide open. Further, the model fails to show when businesses about to emerge as winners because the product is entering the takeoff stage. It is therefore recommended to utilise more than one model to overcome some of these problems.

Using model might help managers to solve a particular problem but overlook other possibilities.

(b) "Growth through concentric diversification into a related industry may be a very appropriate corporate strategy" Comment. (3)

Answer.

While this statement may look relevant on the face of it, this can be applied only when a firm has a strong competitive position but industry attractiveness is low. For example, Murugappa group's E.I.D. Parry India Ltd., for example, has diversified both internally and externally out of the unpredictable sugar business into a series of related businesses run by the parent company.

The related diversification internally took the form of diversifying sugar division into alcohol and confectionary to add profitability to the unpredictable sugar business. Again the fertiliser activity of EID parry group in the form of production of fertiliser mixtures, ammonium phosphate sulphate and super phosphate was integrated externally with Coromandal fertilisers of which E.I.D. Parry India is a major share holder.

4. Discuss the techniques of competence analysis. [10]

Answer.

Five widely used techniques of analysing the competence of organisation and determining its strengths and weaknesses
(i) Financial Analysis, (ii) Market Research, (iii) Opinion Survey, (iv) Factor Rating, and (v) Equilibrium Approach

(i) Financial Analysis: Financial analysis is the process of determining the financial strengths and weaknesses of the company by establishing strategic relationship between the components of balance sheet and profit and loss statement and other operative data.

A number of techniques used to make a financial analysis of a firm. Some of the important techniques are: Common Size Statements, Ratio Analysis, Funds Flow Analysis, Break Even Analysis.

With the help of financial analysis one assess not only the financial position of a firm but also its managerial ability to utilise funds efficiently. But it does not provide any idea about the image of the company's product or the product life.

(ii) Market Research: Market research method is employed a supplement to financial analysis wherein opinions of leading customers, top executives of leading organisation and scientists who are capable of evaluating technological capabilities and trends and obtained by seeking interviews with them. Through market research brings out the effectiveness of an organisation in terms of product life and product technology.

(iii) Opinion Survey: In this method, opinions of key executives about the way the various factors influence the working of the enterprise are sought. On the basis of these opinions, various factors can be grouped into favourable contributing factors and unfavourable contributing factors. However, the analyst must use the information supplied by executives carefully because of their prejudices. It will be more useful if the group discussion method is followed to gather information.

(iv) Factor Rating: In this method various factors affecting the capability of organisation are rated in terms of their influence on financial, marketing and operations management of the firm.

(v) Equilibrium Approach: This is a very useful technique of analysing corporate ability. In this approach, key are identified and managers of the firm invited a wide front to discern various factors contributing positively as well as negatively to each of the critical result areas and consider them together to arrive at particular conclusion.

5. What are the strategies adopted to combat hostile takeover? (10)

A target company which faces the threat of hostile takeover, would adopt the following Strategies:

Poison pill tactics: This strategy aims at initiating action against the predator by destroying the attractiveness of the firm. The following are few methods:

The acquiring company may issue substantial amount of convertible debentures to its existing shareholders which would make it difficult for the potential acquirer as there is a danger of considerable increase in the voting power of the company.

- The target firm either sells or mortgages or leases otherwise disposes off some of its precious assets.
- The target firm can defend itself from the onslaught of the potential bidder is to dispose of its liquidity by acquiring some asset or other firm.
- The target grants its employees stock options that immediately vest if the company is taken over. This is intended to give employees an incentive to continue working for the target company at least until a merger is completed instead of looking for new job as soon as takeover discussions begin. However, with the release of the "golden handcuffs", many discontented employees may quit immediately after they've cashed in their stock options. The poison pill may create an exodus of talented employees. In many high-tech businesses, attrition of talented human resources often means an empty shell is left behind for the new owner.
- The target company issues rights to existing shareholders to acquire a large number of securities, usually common stock or preferred stock. These rights usually allow holders (other than an acquirer) to convert the right into a large number of common shares if anyone acquires more than set amount of the target's stock (typically 10-20%). This immediately dilutes the percentage of the target owned by the acquirer, and makes it more expensive to acquire control of the target.

Green mail tactics: The target firm can purchase its own stocks at a premium to avert a takeover bid. The incentive is offered by management of the target company to the potential bidder for not pursuing the takeover bid.

White Knight tactics: The target company's management may seek out a friendlier potential acquiring company who could offer a higher offer price which would eventually drive away the original bidder. The purpose of 'white knight strategy' is to seek to find a bidder. The objective is to make the takeover exercise much unviable and unprofitable as possible for the original bidder. Such a strategy will help get the target firm a better deal. There are cases where a white knight has later been aggressive with the target company and consummated the deal at better terms.

Golden Parachutes tactics: Adopted by the target company by offering hefty compensations to its managers if they manage to get ousted due to takeover; this is pursued to reduce their resistance to takeover. This was also mentioned among one of the strategies of poison pill. This is mainly initiated because soft target firms who are managed by professional managers may fear shifting of loyalty by professional managers and to avoid any such attempts set up golden parachutes so that predators may not have incentive to deal with the agents for consummating the deal.

Divestiture tactics: Whereby target the company arranges to divest or spin off some of its businesses in the form of an independent, subsidiary company thus reducing the attractiveness of the existing business to the predator. This clearly changes the valuation of the company and many a times the multiples of valuation for multi divisional businesses

would encourage such moves by target companies.

Crown Jewel tactics: Whereby the target company arranges to sell its crown jewel namely highly profitable part of the business or ones which market values better in order to dissuade the predator. However, such strategic initiative requires clear understanding of predators target businesses and valuation guidelines to be effective.

Legal tactics: A target firm can forestall the possible takeover bid through legal mode. It takes the form of 'legal strategy' for guarding against hostile takeovers. In this case, it is possible for the target firm to move a court of law for obtaining injunction against the offer. For this purpose, relevant provisions exist in the Securities Contracts (Regulations) Act, 1956 and the Companies Act, 1956. This strategy is resorted to either to block or delay the tender offer in circumstances where the shares are lodged for the transfer by the bidder. SEBI has me with clear guidelines to discourage hostile takeovers in India.

Section B

Question No.1 is Compulsory. Answer any two questions from the rest.

Question 1. Find the forecast for various years using Mean, Naïve, Linear Trend, Non-Linear Trend forecast from the following data.

Year	2007	2008	2009	2010	2011	2012
Sales (₹ in Crores)	24.50	25.90	27.60	30.10	34.80	41.50

(10)

Answer:

Year	Sales (Y)	Forecast Value			
		Mean Forecast Y_t = Avg (Y)	Naïve Forecast $Y_t = Y_{t-1}$	Linear Forecast $Y_t = a + bX$ $Y_t = 22.58 + 3.26X$	Non Linear Forecast $Y = a + bX + cX^2$ $Y = 24.87 - 0.17X + 0.69X^2$
2007	24.50	24.50 + 25.90 + 27.60 + 30.10 + 34.80 + 41.50 = 184.40 ÷6 = 30.73	-	22.58	24.87
2008	25.90		24.50	22.58 + 3.26 (1) = 25.84	24.87 + 01.17 (1) + 0.69 (1)= 25.38
2009	27.60		25.90	22.58 + 3.26 (2) = 29.10	24.87 + 01.17(2) + 0.69 (2) = 24.27
2010	30.10		27.60	22.58 + 3.26(3) = 32.36	24.87 + 01.17 (3) + 0.69 (3) = 30.53
2011	34.80		30.10	22.58 + 3.26 (4) = 35.63	24.87 + 01.17 (4) + 0.69 (4) = 35.17
2012	41.50		34.80	22.58 + 3.26 (5) = 38.89	24.87 + 01.17 (5) + 0.69 (5) = 41.19

Working Note:

1. Linear Forecast and Non – Linear Forecast: Origin Year = 2007

Year	Y	X	Xy	X^2	X^2y	X^3	X^4
2007	24.50	-	-	-	-	-	-
2008	25.90	1	25.90	1	25.90	1	1
2009	27.60	2	55.20	4	110.40	8	16
2010	30.10	3	90.30	9	270.90	27	81
2011	34.80	4	139.20	16	556.80	64	256
2012	41.50	5	207.50	25	1037.50	125	625

Total	$\Sigma y = 184.40$	$\Sigma x = 15$	$\Sigma xy = 518.10$	$\Sigma x^2 = 55$	$\Sigma x^2y = 2001.50$	$\Sigma x^3 = 225$	$\Sigma x4 = 979$

Linear Forecast:

Equation 1	Equation 2
$\Sigma y = na + b \Sigma x$ So, $184.40 = 6a + 15b$	$\Sigma xy = a\Sigma x + b\Sigma x^2$ $518.10 = 15a + 55b$
Solving Equations 1, and 2, we get , a = 22.58, and b = 3.26 Hence, first degree polynomial equation is Y = 22.58 +3.26X (origin year is 2004)	

Non - Linear Forecast:

Equation 1	Equation 2	Equation 3
$\Sigma y = na + b \Sigma x + c\Sigma x^2$ $184.40 = 6a + 15b + 55c$ $50 = 5a + 10c$	$\Sigma x^2y = a\Sigma x^2 + b\Sigma x^3 + c\Sigma x^4$ $2001.50 = 55a + 225b + 979c$ $114 = 10a + 34c$	$\Sigma xy = a\Sigma x + b\Sigma x^2 + c\Sigma x^3$ $518.10 = 15a + 55b + 225c$ $50 = 10b$
Solving Equations 1,2 and 3, we get , a = 24.87, b = - 0.17 and c = 0.69 Hence, quadratic trend equation is $Y = 24.87 - 0.17x + 0.69x^2$ (origin year is 2004)		

Question 2.

(a) Why Life Cycle Costing is important? (5)

Answer: The visible costs of any purchase represent only a small proportion of the total cost of ownership. In many departments, the responsibility for acquisition cost and subsequent support funding are held by different areas and, consequently, there is little or no incentive to apply the principles of LCC to purchasing policy. Therefore, the application of LCC does have a management implication because purchasing units are unlikely to apply the rig ours of LCC analysis unless they see the benefit resulting from their efforts.

There are 4 major benefits of LCC analysis:

- evaluation of competing options in purchasing;
- improved awareness of total costs;
- more accurate forecasting of cost profiles; and
- Performance trade-off against cost.

(b) A Company paid ₹20,000 and acquired a machine on 1-10-2012. Its annual operating cost is ₹15,000 excluding depreciation. The machine will have a 5-year useful life with zero terminal value.

The machine was just put on trail and was used for one day when the supplier offered a different model to do the same job. The annual operating cost of the revised model is ₹9,000 exclusive of depreciation. The new machine will cost ₹24,000. The old machine can be sold for ₹10,000. The cost of removal of the old machine is ₹2,000. The new machine will also have a five year life with zero terminal value. Sales will be ₹2,50,000 per annum and all other cash costs will be ₹2,10,000 per annum regardless of the decision to change the machine. The machine is installed in a separate building and the written down value of the building is ₹5,00,000. If this building is sold now, it will fetch ₹10 lakhs but the company proposes to use the building for installing the machine.

You are required to explain weather each item of income and expenses or cost stated above is relevant or not in deciding on the replacement of the machine. (8)

Answer: Statement showing relevancy of income & expenditure for replacement decision

	Item of Expenditure	Relevancy
1.	Cost of Machine ₹20,000	It is a sunk cost and is not relevant for replacement decision.
2.	Operating costs ₹15,000 & ₹9,000	These will affect the future cash outflows and are relevant.
3.	Cost of new machine ₹24,000	There is a cash outflows and is relevant for decision making.
4.	Sale proceeds of old machine ₹10,000	This will lead to cash inflow and is relevant.
5.	Removal of old machine ₹2,000	It will affect the future cash outflow and

		is relevant.
6.	Future sales of ₹2,50,000 p.a. and operating costs of ₹2,10,000 p.a.	It is common to both the machines and is not relevant
7.	WDV of buildings of ₹5,00,000	It is a sunk cost is not relevant
8.	Sale value of machine ₹10,00,00	There is no intention to sell the machine and it is not relevant for replacement decision.

(c) An Airline Company's budget and actual for the Quarter January to March 2005 are as under:

Particulars	**₹ in Million**	
	Budget	**Actual**
Income	**200**	**209.0**
Variable costs	**120**	**145.2**
Contribution	**80**	**63.8**
Fixed costs	**70**	**68.0**
Operating Profit (Loss)	**10**	**(4.2)**

The following further details are available.

(a) There was a 90% decrease in air – face resulting in a 5% decrease in the income for the quarter.

(b) Variable cost like fuel, wages, catering, etc. are increased by 10% over budget.

Prepare an analysis reconciling the budgeted and actual profits for the quarter (7)

Answer:

Statement showing Reconciliation of Budgeted and Actual profit for the quarter ending January – march 2005.

(₹ in Millions)

Operating Profit as per Budget		10.00
Add: Increase in contribution due to increased Volume		8.00
		18.00
Less: Reduction in Income due to reduced airfare	11.00	
Increase in variable costs	13.20	24.20
Loss		6.20
Less: Reduction of fixed costs		2.00
Actual Loss		4.20

Working Notes

(i) Increase in Volume

(₹ in Millions)

Income as stated	209
Add: decrease due to decrease in airfare	11
	220

(ii) Percentage increase over budget @10%

(₹ in Millions)

Variable costs : Actual		145.2
Less: Increase due to rates (1/11)		13.2
		132.0
		220
Budget	120	
Add: Increase in volume (10%)	12	132.0

(iii) Increase in contribution

As per budget	80.0
Add: 10% for increase	8.0

Question 3.

(a) A Company trading in Motor Vehicle Spares wishes to determine the level of stock it should carry for the items in its range. Demand is not certain and replenishment of stock takes 3 days. For item X, the information is given

Demand (unit per day)	1	2	3	4	5
Probability	0.10	0.20	0.30	0.30	0.10

Each time an order is placed, the company incurs an ordering cost of ₹20 per order. The Company also incurs a carrying cost of ₹2.50 per unit per day. The inventory carrying cost is calculated on the basis of average stock.

The Manager of the Company wishes to compare two options for his inventory decision-

A. Order 12 units, when the inventory at the beginning of the day plus orders outstanding is less than 12 units.

B. Order 10 units, when the inventory at the beginning of the day plus orders outstanding is less than 1o units.

Currently (on 1st day) the Company has a stock of 17 units. The Random numbers to be used is- 08, 91, 25, 18, 40, 27, 85, 75, 32, 52, using first number for day 1. Make a simulation run for 10 days, recommended which option the Manager should choose. (9)

Answer:

1. Random Numbers Allocation

Demand	Probability	Cumulative Probability	Random Numbers
1	0.10	0.10	00-09
2	0.20	0.30	10-29
3	0.30	0.60	30-59
4	0.30	0.90	60-89
5	0.10	1.00	90-99

2. Simulation Table for Option A: Order 12 units when (Opg Stock + Qty on Order)<12 units

Day (a)	R.No (b)	Demand Units) (c)	Opg Stock (Units) (d)	Order Qtty (Units) (e)	Receipt Qtty (Units) (f)	Qty on Order (Units) (g)	Clg Stock (Units) (h)=d+f-c	Avg Stock Units (i)=(d+h)÷2
1	08	1	17	Nil	Nil	Nil	16	16.5
2	91	5	16	Nil	Nil	Nil	11	13.5
3	25	2	11	12	Nil	12	9	10.
4	18	2	9	Nil	Nil	12	7	8.0
5	40	3	7	Nil	Nil	12	4	5.5
6	27	2	4	Nil	12	Nil	14	9.0
7	85	4	14	Nil	Nil	Nil	10	12.0
8	75	4	10	12	Nil	12	6	8.0
9	32	3	6	Nil	Nil	12	3	4.5
10	52	3	3	Nil	Nil	12	Nil	1.5
	Total			2 Orders				88.5

Note: Column (e) Order Quantity=12 units, only if (g)+(h) of previous day is less than 12 units. Column (g) Quantity on Order is based on Column (e) and lead time of 3 days.

3. Simulation Table for Option B: Order 10 units when (Opg Stock+Qtty on Order)<10 units

Day (a)	R.No. (b)	Demand (Units) (c)	Opg Stock (Units) (d)	Order Qtty (Units) (e)	Receipt Qtty (Units) (f)	Qtty on Order (Units) (g)	Clg Stock (Units) (h)=d+f-c	Avg Stock Units (i)=(d+h)÷2
1	08	1	17	Nil	Nil	Nil	16	16.5
2	91	5	16	Nil	Nil	Nil	11	13.5
3	25	2	11	Nil	Nil	Nil	9	10.
4	18	2	9	10	Nil	10	7	8.0
5	40	3	7	Nil	Nil	10	4	5.5
6	27	2	4	Nil	Nil	10	2	3.0

7	85	4	2	Nil	10	Nil	8	5.0
8	75	4	8	10	Nil	10	4	6.0
9	32	3	4	Nil	Nil	10	1	2.5
10	52	3	1	Nil	Nil	10	Nil	0.5
	Total			2 Orders				70.5

4. Comparison of costs of the alternatives

Option A		**Option B**	
Ordering Cost=2 orders x ₹20	=₹40.00	Ordering Cost=2 Orders x ₹20	=₹40.00
Carrying Cost=88.5 units x 2.50	=₹221.25	Carrying Cost=70.5 units x 2.50	=₹176.25
Total Associated Cost	=₹261.25	Total Associated Cost	=₹216.25

Result: Since Option B has a lower Total Cost, the manager should order 10 units.

(b) Why is Lean Accounting Needed? (4)

Answer: 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 bookkeeper and reporter and towards strategic partnering with the Company leaders.

At a deeper level Lean accounting matches the cultural goals of a lean organization. The simple and timely information empowers people at all levels of the organization. The financial and performance measurement information is organized around Value streams and thereby honors the lean principle of Value stream management. The emphasis on Customer Value is also derived from the principles of lean thinking. The way a Company accounts and measures its business is deeply rooted in the culture of organization. Lean Accounting has an important role to play in developing a lean culture within an organization

(c) Samir Healths centre specializes in the provision of sports/ exercise and medical advice to clients. The service is provided on a residential basis and clients stay for whatever number of days suits their needs.

Budgeted estimates for the year ending 31st March, 2012 are as follows:

(i) The maximum capacity of the centre is 50 clients per day for 350 days in the year;

(ii) Clients will be invoiced at a fee per day. The budgeted occupancy level will vary with the client fee level per day and is estimated at different percentages of maximum capacity as follows:

Client fee per day	Occupancy level	Occupancy as % of maximum capacity
₹180	**High**	**90%**
₹200	**Most likely**	**75%**
₹220	**Low**	**60%**

(iii) Variable costs are also estimated at one of the three levels per client day. The high, most likely and low levels per client day are ₹95, ₹85 and ₹70 respectively.

The range of cost levels reflect only the possible effect of the purchase prices of goods and services.

Required:

(a) Prepare a summary which shows the budgeted contribution earned by Samir health centre for the year ended 31 – 3 – 2012 for each of nine possible outcomes. 6

(b) State the client fee strategy for the year which will result from the use of each of the following decision rules-

(i) Maximax ; (ii) maximin; (iii) minimax regret.

Your answer should explain the basis of operation of each rule. (7)

Answer:

(a) Budgeted Net Profit/Loss outcomes for year ending 31st March, 2012

O.L.	Client Days	Fee/ Client day ₹	Var. Cost/ Client day ₹	Contribution/ Client day ₹	Total Contribution/year ₹
High	15,750	180	95	85	1,338,750
	15,750	180	85	95	1,496,250
	15,750	180	70	110	1,732,500
Most Likely	13,125	200	95	105	1,378,125
	13,125	200	85	115	1,509,375
	13,125	200	70	130	1,706,250
Low	10,500	220	95	125	1,312,500
	10,500	220	85	135	1,417,500
	10,500	220	70	150	1,575,000

(b) The maximax rule looks for the largest contribution from all outcomes. In this case the decision maker will choose a client fee of ₹ 180 per day where there is a possibility of a contribution of ₹ 17,32,500.

The maximin rule looks for the strategy which will maximise the minimum possible contribution. The maximum of the minimum contributions is ₹ 13,78,125. So, the strategy will be the client fee of ₹ 200 per day.

The minimax regret rule requires the choice of the strategy which will minimise the maximum regret from making the wrong decision. Regret in this context is the opportunity lost through making the wrong decision.

Using the calculations from part (a) we may create an opportunity loss table as follows"

Client fee per day strategy

Particulars	₹	₹	₹
State of variable cost	180	200	220
High	39,375	0	65,625
Most likely	13,125	0	91,875
Low	0	26,250	1,57,500
Maximum regret	39,375	26,250	1,57,500

Example of the workings: at the low level of variable costs, the best strategy would be a client fee of ₹ 180. The opportunity loss from using a fee of ₹ 200 or ₹ 220 per day would be ₹ 26,250 (ie. 17,32,500 - ₹ 17,06,250) or ₹ 1,57,500 (ie. 17,32,500 - 15,75,000) respectively.

The minimum regret strategy (client fee ₹ 200 per day) is that which minimises the maximum regret (ie.; ₹ 26,250 in the maximum regret row above).

Question 4.

(a) "Kaizen Costing is an approach that explicitly incorporates continuous improvement during the budget period" Discuss the statement. (4)

Answer: 'Kaizen' is a Japanese term for making improvement to a process through small incremental amounts, rather than through large innovation. Kaizen Costing focuses on the production process and the cost reductions are derived primarily through the efficiency of the production process. As the products are already in the manufacturing stage of their life cycles, the potential cost reductions are smaller- the aim of Kaizen costing being to reduce the cost of components and products by a pre-specified amount.

For example, each plant in a manufacturing unit may be assigned a target cost reduction ratio and this is applied to the previous year's actual costs to determine the target cost reduction. Kaizen Costing relies heavily on employee empowerment. They are assumed to have superior knowledge about how to improve processes because they are closets to the manufacturing processes and customers, and are likely to have greater insights into how costs can be reduced.

(b) Industrial metal Works Ltd., have received an enquiry from Calcutta Enterprise for the manufacture and supply of 200 units of a product. The offer if finalized would be a repeat order. The first 100 units at the selling price of ₹300 each was completed last month but IMWL did not make any profit or loss on the order. Analysis of the completed order shows the following:

(i) Tooling cost to the extent of ₹1,000 was charged totally to the order since the tools would not benefit the production of any subsequent order.

(ii) Raw material cost per unit was ₹80. An increase of 10% is estimated for the new order.

(iii) Finishing cost of the product was ₹6 per unit. The operation is highly mechanical and no learning function is applicable.

(iv) The cost of inspection was ₹2 per unit. This is manual work to which learning function would apply.

(v) Direct labour cost was ₹202 per unit. Negotiations with the worker's union are almost complete and as a result of which labour costs are likely to go up by 10% by the time the order materialise.

IMWL expects profit of 10% on the cost of the proposed contract but insists on retaining for itself the benefit of learning function. On the other hand, Calcutta Enterprises is prepared to allow for all cost increase and higher profit margin of 15% on cost but wants to have the advantage of cost saving taking into account 80% learning effect.

You are required to determine the manufacturer's price and determine the buyer's price.

(7)

Answer:

(i) Labour cost

For 300 units – 70.21% of ₹222.2 (only labour cost) = ₹ 156 (approx.) per unit

	(₹)
For 300 units	46,800
Less: 100 units	22,220
For 200 units	24,580

(ii) Inspection cost

For units	Average per 100	(₹) Total
100	200	200
300 (70.21%)	140.42	421
200		221

Tooling cost for 200 units has been taken as double the cost of 100 units.

	For 1st order of 100 units	For 2nd order (without learning) Manufacturer's price	200 units (with 80% learning) Buyer's price
Raw materials	8,000	17,600	17,600
Direct wages	20,200	44,440	24,580
Finishing cost (₹6/unit)	600	1,200	1,200
Inspection cost	200	400	223
Tooling cost	1,000	2,000	2,000
	30,000	65,640	45,603
Profit	-	(10%) 6,564	(15%) 6,840
Selling price		72,204	52,443

(c) A company has 4 Zones and 4 Marketing Managers available for Assignment. The zones are not equal in sales potentials. It is estimated that a typical marketing Manager operating in each zone would bring in the following Annual sales –

Zones	East	West	North	South
₹	2,40,000	1,92,000	1,44,000	1,20,000

The four Marketing managers are also different in ability. It is estimated that working under the same conditions, their yearly sales would be proportionately as under:

Manager	M	N	O	P
Proportion	8	7	5	4

If the criterion is Maximum Expected Total sales, find the optimum Assignment and the Maximum sales. **(9)**

Answer: Given Matrix –

Zone	East	West	North	south
Sales value	2,40,000	1,92,000	1,44,000	1,20,000

Manager	Proportion
M	8/24
N	7/24
O	5/24
P	4/24

80	64	48	40
70	56	42	35
50	40	30	25
40	32	24	20

I. Opportunity Loss Matrix

0	16	32	40
10	24	38	45
30	40	50	55
40	48	56	60

II. Row Operation

0	16	32	40
0	14	28	35
0	10	20	25
0	8	16	20

III. Colum Operation

0	8	16	20
0	6	12	15
0	2	4	5
0	0	0	0

IV. Line Drawing

0	8	16	20
0	6	12	15
0	2	4	5
0	0	0	0

No. of Lines (2) ≠ Order of Matrix (4) LOE= 2

V. Revised Matrix 1 with LOE = 2

0	6	14	18
0	4	10	13
0	0	2	3
2	0	0	0

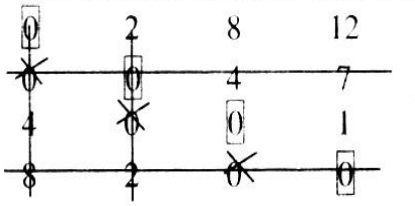
No. of Lines (3) ≠ order of Matrix (4) LOE = 2

VI. Revised Matrix 2 with LOE = 2

0	6	12	16
0	4	8	11
0	0	0	1
4	2	0	0

Lines (3) $\neq$ Order (4), LOE = 4

VII. Revised Matrix 3 with LOE=4



Lines (4) = Order of Matrix (4)

VII. Maximum sales

M – East – ₹80,000
N – West – ₹56,000
O – North – ₹30,000
P- South – ₹20,000
Total – ₹1,86,000