Paper – 15: Business Strategy & Strategic Cost Management

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

Whenever necessary, suitable assumptions should be made and indicate in answer by the candidates.

Working Notes should be part of your answer

(Section A)
Question No. 1 & 2 are compulsory. Answer any two questions from the rest.

1. (a) HP and Microsoft global strategic alliance is one of the longest standing alliances of its kind in the industry, with more than 25 years of combined market place leadership focused on helping, customers and channel patterns around the world to improve productivity through the use of innovative technologies. Branded the HP and Microsoft Frontline Partnership, the companies share technology, engineering and marketing resources to create and promote solutions based on industry-standard computing platforms that help solve some of the most challenging IT problems. HP and Microsoft have jointly engineered solutions that deploy smoothly, seamlessly and delivered competitive advantage. Over the time, the alliance has expanded from its earliest roots focused on the desktop PC to include innovations in the data center and emerging technologies for businesses of all sizes. The alliance also has expanded to provide opportunities for out more than 32,000 joint resellers and ecosystem partners.

(i) Define strategic alliance. Identify three basic types of strategic alliances.
(ii) What are the advantages of the HP and Microsoft global strategic alliance?
[(1.5 + 1.5 x 3) + 4]

Answer:
(i) A strategic alliance is an agreement between two or more parties to pursue a set of agreed upon objectives needed while remaining independent organizations. This form of cooperation lies between M&A and organic growth.

Strategic alliances are cooperative strategies between firms whereby resources and capabilities are combined to create a competitive advantage. All strategic alliances require firms to exchange and share resources and capabilities to co-developed or distribute goods or services. The three basic types of strategic alliances are:

(a) Joint ventures, where a legally independent company is created by at least two other firms, with each firm usually owning an equal percentage of the new company: Benefits of Joint Venture:
   (1) Pooling of resources,
   (2) Full utilization of underutilized resources,
   (3) Higher rates of profits,
   (4) Low risk factors,
   (5) Massive leverage

(b) Equity strategic alliances, whereby partners own different percentages of equity in the new company they have formed:

Example of Equity Strategic Alliances Ford Motor Company and Mazda Motor Corporation formed a long - standing equity strategic alliance.

(c) Non-equity strategic alliance, which are contractual relationships between firms to share some of their resources and capabilities. Typical forms are like Licensing agreements, distribution agreements and supply contracts.
Example of Non-Equity Strategic Alliances Example of a successful non- equity strategic alliances is the du and Vodafone alliances formed in 2009.

(ii) The following are specific advantages in the global strategic alliance:
(a) Get instant market access;
(b) Exploit new opportunities to strengthen the position in a market where a firm already have a foothold:
(c) Increase sales:
(d) Gain new skills and technology:
(e) Develop new products at a profit:
(f) Share fixed cost and resources;
(g) Enlarge the distribution channels;
(h) Broaden the businesses and political contact base;
(i) Gain greater knowledge on international customs and culture:
(j) Enhance your image in the world market place.

(b) Critics of Nike often complain that it's shoes cost almost nothing to make, yet cost the consumer so much. Identify the strategic marketing planning steps which provide value that add to Nike 's offering and result in the high price of Nike's shoes. [5]

Answer:
Critics of Nike often complain that its shoes cost almost nothing to make yet cost the consumer so much.

TRUE. The raw materials and manufacturing costs involved in the making of a sneaker are relatively cheap, but the process of selling the product to the consumer is expensive. Materials, labor, shipping, equipment, import duties, and suppliers cost generally total fewer than for a pair of shoes Nike must compensate its sales team, its distributors, its administration and its endorsers, as well as pay for advertising & R&D. Finally Nike sells its products to retailers to make a profit. The retailer therefore pays some amount in order to put a pair of Nikes on the shelf.

Only a handful of companies like Nike stand out as master marketers. These companies focus on the customer and are:
(1) organized to respond effectively to changing customer needs.
(2) have well-staffed marketing departments, and
(3) all their other departments—manufacturing, finance, research and development, personnel, purchasing; also accept the concept that the customer is king.

Strategic planning covers the entire activities of the organization, including all of the strategic business units (SBUs) and each functional area. Developing functional strategies and plans is the fourth step in the strategic planning process. One technique for identifying opportunities is to seek strategic windows. A strategic window is the identification of an opportunity for a limited period in the future and managing the organization & apposes resources so that there is a fit between the key market needs and the ability of the organization to meet those needs at an optimum level. A marketing plan is the central instrument for directing and coordinating the marketing effort. It operates at a strategic and tactical level.

Steps in Planning Process
To carry out their responsibilities, marketing managers - whether at the corporate, division, business or product level follow a marketing process. Working within the plans set by the levels above them, product managers come up with a marketing plan for individual products lines, brands, channels, or customer groups.

Tactical Marketing Strategic Marketing
The 1st phase choosing the value represents the homework that marketing must do before any product exists. The marketing staff must segment the market and develop the offerings value positioning.

The 2nd phase is providing the value. Marketing must determine specific product features, prices and distribution as part of tactical marketing. The task in the 3rd phase is communicating the value. Further tactical marketing occurs in utilizing the sales force, sales promotion, advertising, and other promotional tools to inform and promote the product.

2. From peak sales of over 27,000 units in the January-March 2012 quarter to under 4,000 in the three months to December 2013, Tata Motors' Nano hasn't quite lived up to the hype and expectations built up since its launch in mid-2009. To combat with the situation now it launched Nano Twist, a 'smart city car' costing just under Rs. 2.36 lakhs.
Answer the following questions :

(a) What is strategic decision? What are its characteristics?
(b) Strategic decisions are complex in nature – explain.
(c) Explain how this strategic decision will help Tata Motors to repositioning themselves in the market. [5+5+5]

Answer :

(a) Strategic decisions are the decisions that are concerned with whole environment in which the firm operates, the entire resources and the people who form the company and the interface between the two.

The characteristics of strategic decision are as follows :

(i) Strategic decisions are likely to affect the long-term direction of an organisation.
(ii) Strategic decisions are normally about trying to achieve some advantage for the organisation.
(iii) Strategic decisions are likely to be concerned with the scope of an organisation's activities: Does (and should) the organisation concentrate on one area of activity, or does it have many? The issue of scope of activity is fundamental to strategic decisions because it concerns the way in which those responsible for managing the organisation conceive its boundaries. It is to do with what they want the organisation to be like and to be about.
(iv) Strategy is to do with the matching of the activities of an organisation to the environment in which it operates.
(v) Strategy can also be seen as 'stretching' an organisation's resources and competences to create opportunities or capitalise on them. It is not just about countering environmental threats and taking advantage of environmental opportunities; it is also about matching organisational resources to these threats and opportunities. There would be little point in trying to take advantage of some new opportunity if the resources needed were not available or could not be made available, or if the strategy was rooted in an inadequate resource-base.

(vi) Strategic decisions therefore often have major resource implications for an organisation. In the 1980s a number of UK retail firms had attempted to develop overseas with little success and one of the major reasons was that they had underestimated the extent to which their resource commitments would rise and how the need to control them would take on quite different proportions. Strategies, then, need to be considered not only in terms of the extent to which the existing resource-base of the organisation is suited to the environmental opportunities but also in terms of the extent to which resources can be obtained and controlled to develop a strategy for the future.

(vii) Strategic decisions are therefore likely to affect operational decisions, to 'set off waves of lesser decisions'.

(viii) The strategy of an organisation will be affected not only by environmental forces and resource availability, but also by the values and expectations of those who have power in and around the organisation. In some respects, strategy can be thought of as a reflection of the attitudes and beliefs of those who have the most influence on the organisation. Whether a company is expansionist or more concerned with consolidation, and where the boundaries are drawn for a company's activities, may say much about the values and attitudes of those who influence strategy -- the stakeholders of the organisation. The beliefs and values of these stakeholders will have a more or less direct influence on the organisation.

(b) Strategy is the direction and scope of an organisation over the long term, which achieves advantage for the organisation through its configuration of resources within a changing environment, to meet the needs of markets and fulfil stakeholder expectations.

Strategic decisions are, then, often complex in nature: it can be argued that what distinguishes strategic management from other aspects of management in an organisation is just this complexity. The complexity arises for at least three reasons. First, strategic decisions usually involve a high degree of uncertainty: they may involve taking decisions on the basis of views about the future which it is impossible for managers to be sure about. Second, strategic decisions are likely to demand an integrated approach to managing the organisation. Unlike functional problems, there is no one area of expertise, or one perspective that can define or resolve the problems. Managers, therefore, have to cross functional and operational boundaries to deal with strategic problems and come to agreements with other managers who, inevitably, have different interests and perhaps different priorities. This problem of integration exists in all management tasks but is particularly problematic for strategic decisions. Third, as has been noted above, strategic decisions are likely to involve major change in organisations. Not only is it problematic to decide upon and plan those changes, it is even more problematic actually to implement them. Strategic management is therefore distinguished by a higher order of complexity than operational tasks.

(c) Tata developed the Nano car world's cheapest car. Tata want to provides car to all common man but unfortunately that didn't go down with buyers too well. From starting Tata Nano car faced trouble in factory establishment and many other issues. But now Tata comes out stronger on other side and ready to offer Nano automatic transmission.

With the new Nano Twist, and the Nano eMax a few months back, Nano portfolio stands true to its brand essence: of a youthful, exciting car offering great value but, at the same time, builds in a different set of features to suit differing customer needs.

Focus on youth: The attempt over the past year has been to attract youngsters. To build a youthful and aspirational value around the brand, Tata Motors through its 'awesomeness'

branding and marketing campaign worked with fashion designer Masaba Gupta on the launch of the Twist. The makeover campaign is an attempt to get youngsters to look at the Nano as a fashion accessory. The company promises more on-ground activities and showcases at colleges to woo the youth.

Fresh positioning: From a people's car and the world's cheapest, the Nano is now positioned as the smart city car for young achievers. While the perception of a cheap car has still not gone away, the profile of the consumer has tremendously improved — along with the features in the car. Based on market research, Tata Motors has segmented potential customers into first-time buyers, those looking for a replacement or an additional car and others who want more features and performance. Near-term plans include a variant with automated transmission to strengthen the smart city car positioning.

With all the significant product changes, it is a really easy-to drive car, great to manoeuvre, with a distinct individuality and colour and offering what no car can in this price range — a great style, entertainment and music, industry-leading power steering and more. The repositioning will make the product cater to a larger number of customer segments.

3. (a) What is business strategy ? What is Strategy? Why it is done (Strategy)? [2+2+2]

Answer.

Business Strategy

The definition of business strategy is a long term plan of action designed to achieve a particular goal or set of goals or objectives.

A typical business strategy is developed in three steps – analysis, integration and implementation. Effective strategies are the key to our ability to succeed.

The definition of business strategy includes corporate planning which focuses on the overall purpose of the business in some cases this may be defined by the company's mission statement. This aspect of business strategy targets where the business wants to be in the long-term.

Strategy

Strategy is short, bridges the gap between "where we are" and "where we want to be".

A method or plan chosen to bring about a desired future, such as achievement of a goal or solution to a problem.

"The framework which guides those choices that determine the nature and direction of an organization."

Why strategy is done?

Strategy is significant because it is not possible to foresee the future. Without a perfect foresight, the firms must be ready to deal with the uncertain events which constitute the business environment.

Strategy deals with long term development rather than routine operations, i.e. it deals with probability of innovations or new products, new methods of productions, or new markets to be developed in future. Strategies dealing with employees will predict the employee behaviour. Strategy is a well defined roadmap of an organization. It defines the overall mission, vision and direction of an organisation. The objective of a strategy is to maximize an organisation's strengths and to minimize the strengths of the competitors.

(b) State briefly the purpose of a SWOT analysis. [4]

Answer:
Purpose of SWOT analysis:

(1) SWOT analysis involves a systematic analysis of the internal strengths and weaknesses of a firm (financial, technological, managerial) and of the external opportunities and threats in the firm's environment (changes in the markets, laws, technology and the actions of the competitors). This will provide a basis for evaluating the extent to which the firm is likely to achieve its various objectives and for identifying new products and market opportunity. It is an internal appraisal of a firm. The purpose of SWOT analysis will be to expose the strengths and weaknesses of the firm.

(2) Further a SWOT Analysis will help in defining the strategic approach to be formulated that will fit in admirably with the environment.

(3) An analysis of Opportunities and Threats is concerned with identifying profit-making opportunities in the business environment and for identifying threats - e.g., falling demand, new competition, government legislation etc., it is thus an external appraisal, strengths and weaknesses analysis.

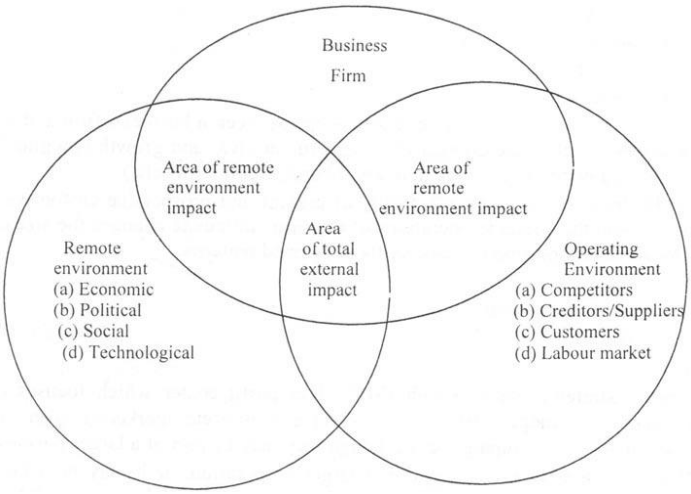
(4) Identification of shortcomings in skills or resources could lead to a planned acquisition programme or staff recruitment and training. Thus SWOT analysis helps in highlighting areas within the company, which are strong and which might be exploited more fully and weaknesses, where some defensive planning might be exploited more fully and weaknesses, where some defensive planning might be required to prevent the company from poor results.

4. (a) Explain why it is important for organizations to analyze and understand the external environment. [6]

Answer.
Environmental Analysis: External and often largely uncontrollable factors influence a firm's choice of direction and action, and ultimately, its organisational structure and internal processes. These factors, which constitute the external environment, can be divided into:

(1) Remote environment (It is composed of a set of forces that originate beyond the operating situation of the firm).

(2) Operating environment (involves factors in the immediate competitive situation that provide many of the challenges a particular firm faces in attempting to attract needed resources or in striving to profitability market its goods and services). These factors are depicted in the following diagram:



Remote environment:

Economic: Economic considerations refer to the nature and direction of the economy in which the business operates. E.g. Availability of credit, interest rates, rates of inflation, growth trends of GNP etc.

Political: The direction and stability of political factors is a major consideration for managers in formulating company strategy. Political constraints are placed on each company through. E.g.: Fair trade decisions, Tax programs, Minimum wage legislation, Pricing and pollution policies, Laws aimed at protecting the consumer and the environment etc.

Social: Social considerations involve the beliefs, values, attitudes, opinions, life styles of those in a firm's external environment, as developed from their cultural, demographic, religions, educational.

Technological: To avoid obsolescence and prompt innovation, a firm must be aware of technological changes that might influence its industry.
E.g.: Technological innovation, forecasting, manufacturing and marketing techniques.

Operating Environment:
Competitive position: By assessing its competitive position, a business improves its chances of, designing strategies that optimise environmental opportunities.

In constructing a competitor's profile, the following situational factors to be considered:
(a) Market share
(b) Breadth of product line
(c) Effectiveness of sole distribution
(d) Price competitiveness
(e) Advertising and promotional effectiveness
(f) Financial position
(g) Product quality (h) R&D position
(i) Caliber of personnel
(j) General image

Suppliers and Creditors: Dependable relationships between a business, firm and its suppliers and creditors are essential to the company's long term survival and growth (supplier's financial support, services, and materials) (Quick delivery, liberal, credit terms etc.).

Customer Profiles: In developing a profile of present and prospective customers, managers are better able to plan the strategic operations of the firm, anticipate changes the size of markets, and allocate resources supporting forecast shifts in demand patterns.

(b) What is the relationship between 'strategic competitiveness' and 'returns on investment'? [4]

Answer:

Strategic competitiveness

Competitive strategy refers to how a company competes in a particular business. Competitive strategy is concerned with how a company can gain a competitive advantage through a distinctive way of competing. Strategic competitiveness is a type a strategy that certain firm can plan to achieve their organizational goals even though there are a lot of competitors around them. It can be achieved when a certain company or firm successfully come out with a special ideas or strategy that can allows the firm to create wealth to its organization when it is implemented or in other word, implementing value-creating strategy.

Return on Investment

A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. To calculate ROI, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio.

The return on investment formula:

$$\text{ROI} = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

In the above formula "gains from investment", refers to the proceeds obtained from selling the investment of interest. Return on investment is a very popular metric because of its versatility and simplicity. That is, if an investment does not have a positive ROI, or if there are other opportunities with a higher ROI, then the investment should not be undertaken.

5. (a) Write the benefits that can be derived from "unrelated diversification'. What are the two ways that an unrelated diversification strategy can create value? [2 + 2]

Answer:

With unrelated diversification few benefits are derived from horizontal relationships -that is the leveraging the core competencies or the sharing of activities across business units within a corporation. More efficient cash management and allocations of investment capital, and growth in profits through cross-subsidization can lead to a larger income than would be available from simple portfolio diversification.

Unrelated diversification can create value through two ways of financial economies (cost savings).

(1) Unrelated diversified firms can more efficiently allocate capital among the component businesses than can the external financial market. This is possible because the corporate level management has more complete information about the performance of the component businesses and it can also discipline under-performing management teams.

(2) Unrelated diversified firms can also create value by purchasing other businesses at low prices, restructuring them, and reselling them at a higher price. This practice is most successful with mature, low-technology business, rather than high technology or service businesses which are more dependent on employees who may leave.

(b) What advantages does the GE matrix model have over the BCG matrix? [6]

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 new 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, a strategist may plot a business in any of nine positions, as 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 colors 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 labeled G, R, and Y. If a firm or product under analysis falls in an intersection within Grid G, or a "green" cell, then an invest-and-grow strategy should be used. An organization or product falling in an intersection within Grid R, or a "red" cell, should either (1) be harvested and ultimately divested or (2) employ a retrenchment and turnaround strategy, curtail or reduce investment in the business, and extract as much as possible before the business is divested. Grid Y portrays a firm that intersects in a "yellow" cell, where the firm or product has low business strengths but high industry attractiveness. Here, the organization should employ a selectivity/earnings strategy. If this demonstrates good earning potential for the business, it should received an 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	G	Y	High
G	Y	R	Moderate
Y	R	R	Low
High	Medium	Low	

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

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 emphasizes channeling corporate resources 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 as opposed to specific strategies. Although a strategy such as "hold and maintain" may be useful as a starting point, specific approaches to implement the strategy remain wide open. Further, the model fails to show when businesses are about to emerge as winners because the product is entering the takeoff stage. It is therefore recommended to utilize more than one model to overcome some of these problems. Using one model might help managers to solve a particular problem but overlook other possibilities.

(Section-B)
Question No. 6 is Compulsory. Answer any two questions from the rest.

6. Domestic political trouble in the country of an overseas supplier is causing concern in your company because it is not known when further supplies of raw material 'x' will be received. The current stock held of this particular raw material is 17,000 kgs., which costs ₹1,36,000.
Based on raw material 'x', your company makes five different products and expected demand for each of these, for the next three months, is given below together with relevant information.

Product Code	Kilogram of raw material 'x'/units of finished product (kg.)	Direct labour hours/unit of finished product (Hrs.)	Selling price/unit (₹)	Expected demand over three months (units)
701	0.7	1.0	26	8,000
702	0.5	0.8	28	7,200
821	1.4	1.5	34	9,000
822	1.3	1.1	38	12,000
937	1.5	1.4	40	10,000

The direct wages rate/hour is ₹5 and production overhead is based on direct wages cost. The variable overhead absorption rate being 40% and the fixed overhead absorption rate being 60%. Variable selling costs, including sales commission are 15% of selling price.
Budget fixed selling and administration costs are ₹3,00,000 per annum. Assume that the fixed production overhead incurred will equal the absorbed figure.
You are required to:
(i) Show what quantity of the raw material on hand ought to be allocated to which products in order to maximize profits for the forthcoming three months.
(ii) Present a brief statement showing contribution and profit for the forthcoming three months, if your suggestion in (i) is adopted. [5+5]

Answer:
(i) Statement showing computation of contribution/kg of material and determination of priority for profitability:

(₹)

Product Code	701	702	821	822	937
(i) Selling Price (₹)	26.00	28.00	34.00	38.00	40.00
(ii) Variable Cost					
(a) Direct Material	5.60	4.00	11.20	10.40	12.00
(b) Labour	5.00	4.00	7.50	5.50	7.00
(c) Production overheads	2.00	1.60	3.00	2.20	2.80

(d) Selling expenses	3.90	4.20	5.10	5.70	6.00
	16.50	13.80	26.80	23.80	27.80
(iii) Contribution (i)-(ii)	9.50	14.20	7.20	14.20	12.20
(iv) Raw material Qty/kg/unit	0.70	0.50	1.40	1.30	1.50
(v) Contribution/kg of material (iii/v)	13.57	28.40	5.14	10.90	8.13
(vi) Ranking	II	I	V	III	IV

(ii) Statement showing Optimum Mix under given conditions and computation of Profit at that mix:

Product Code	**701**	**702**	**821**	**822**	**937**	**Total**
No. of units	8,000	7,200	-------	6,000	-------	
Contribution/unit	9.50	14.20	-------	14.20	-------	
Total Contribution	76,000	1,02,240	-------	85,200	--------	2,63,440
Fixed Cost						1,36,080
Profit						1,27,360

Working Notes:

Computation of material apportioned on the basis of priority:

Available material	17,000
Less: Used for 702 (7,200x0.50)	3,600
	13,400
Less: Used for 701 (8,000x0.7)	5,600
	7,800
Therefore no. of units of 822 to be produced from the remaining material (7,800/1.3)=6,000 units	

Fixed Cost:	₹
Selling and Administration overheads B[(30,000/12)x3]	75,000
Factory overhead [(8,000x5x60%) + (7,200x4x60%) + (6,000x5.5x60%)]	61,080
	1,36,080

Computation of Fixed Costs for 3 months:					
Selling & Admn. Costs			=(₹3,00,000/12)x3		=₹75,000
Factory Overhead:					
Prodn. Code	**%**	**Rate (₹)**	**Units**	₹	
702	60	4.00	7,200	17,280	
701	60	5.00	8,000	24,000	
822	60	5.50	6,000	19,800	₹61.080
					₹1,36,080

7. (a) What is the theory of constraints? [4]

Answer:

The theory of constraints (TOC) focuses attention on constraints and bottlenecks within the organization which stands in the way for speedy production. The theory was developed by Goldartt and Cox to help managers to improve overall profitability of the concern. The main concept is to maximize the rate of manufacturing outputs. The theory was turned into an accounting system known as Throughput Accounting.

TOC views that the peace of production is guided by the bottleneck within the organization; hence the same should be either removed or their influence to hinder production be minimized.

In the new approach to production management called OPT (optimized production technology), TOC advocates a throughput orientation whereby throughput must be given first priority, inventories second and operational expenses last. The TOC adopts a short-run time horizon and treats all operating expenses (including direct labour but excluding direct materials) as fixed, thus implying that variable costing should be used for decision-making, profit measurement and inventory valuation. In substance, TOC appears to be merely a restatement of contribution per limiting factor; and in reality, TOC deals with a LP problem of maximizing throughput contribution subject to constraint of bottleneck resources.

(b) Apollo Company prepares its budgeted output and sales at its maximum capacity of 20,000 units for 2013. However, due to efficiency improvements, Apollo was able to sell 22,000 units for the year. Other data for 2013 follows as:

Budgeted fixed overhead costs	**₹5,00,000**
Budgeted selling price	**100**
Budgeted variable cost per unit	**40**

(i) Calculate the budgeted profit per unit, the operating income based on the budgeted profit per unit, and the flexible-budget operating income. [2+2+2]

(ii) Compute sales-volume variance and production-volume variance. What do each of these variance measures? [2+2+2]

Answer:

Sales-Volume variance, production-volume variance.

(i) Budgeted selling price		₹100
Budgeted variable cost per unit	₹40	
Budgeted fixed cost per unit (₹5,00,000÷ 20,000)	25	
Budgeted cost per unit		65
Budgeted profit per unit		₹35
Operating income based on budgeted profit per unit ₹35 per unit X 22,000 units		₹7,70,000
Flexible-budget operating income is revenue ₹100X 22,000		₹22,00,000
Variable cost ₹40X 22,000		8,80,000
Fixed costs		5,00,000
Operating income		8,20,000
Static-budget operating income is:		
Revenue ₹100X 20,000		20,00,000
Variable costs ₹40X 20,000		8,00,000
Fixed costs		5,00,000
Operating income		₹7,00,000

(ii) The sales volume variance recognizes that when Apollo sells 22,000 units instead of the budgeted 20,000, only the revenue and the variable costs are affected. Fixed cost remains unchanged.

Sales volume variance	[Budgeted selling price-Budgeted variable costs per unit X Difference in quantity of units sold relative to the static budget		
	=(₹100-₹40)X 2,000	=60 X 2,000	=₹1,20,000F
Production-volume variance	Budgeted fixed overhead cost per unit X Difference in quantity of units sold relative to the static budget		

	=₹5,00,000/20,000 ×2,000	=₹25×2,000	=₹50,000F

Compare the sales-volume variance and the production-volume variance. The ₹1,20,000F sales-volume variance explains the difference between the static-budget operating income and the flexible-budget operating income:

Static-budget operating income	₹7,00,000
Sales-volume variance	1,20,000F
Flexible-budget operating income	8,20,000

The ₹50,000F production-volume variance explains the difference between operating income based on the budgeted profit per unit and the flexible-budget operating income:

Operating income based on budgeted profit per unit	₹7,70,000
Production-volume variance	50,000
Flexible-budget operating income	8,20,000

(c) 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

7. (a) SV Ltd. manufactures two products A and B. The product A is a low-volume item and its sales are only 5,000 units per annum. The product B is a high-volume item and its sales are 20,000 units per annum. Both products require two direct labour-hours for completion. The company works 50,000 direct labour-hours each year as given below:

	Hours

Praduct A: 5,000 units x 2 hours	**10,000**
Product B: 20,000 units x 2 hours	**40,000**
	50,000

Details costs for materials and labour for each product (per unit) are given below:

	Product	
	A	**B**
Direct Materials	**₹25**	**₹15**
Direct labour (at ₹ per hour)	**10**	**10**

The company's total manufacturing overhead costs are ₹ 75,000 per annum. The company has analysed its operations and has determined that five activities act as cost drivers in the incurrence of overhead costs. Data relating to the five activities are given below:

		Number of events or transactions		
Activity	**Traceable costs**	**Total**	**Product A**	**Product B**
Machine set-ups	**₹ 2,30,000**	**5,000**	**3,000**	**2,000**
Quality inspections	**1,60,000**	**8,000**	**5,000**	**3,000**
Production orders	**81,000**	**600**	**200**	**400**
Machine-hours worked	**3,14,000**	**40,000**	**12,000**	**28,000**
Material receipts	**90,000**	**750**	**150**	**600**
Total	**8,75,000**			

You are required to compute per unit cost for each product using:
(i) Direct Labour Hour Rate Method for absorption of overhead costs.
(ii) Activity-based Costing Technique for absorption of overhead costs. Comment on your results. **[3+5+2]**

Answer:

(i) Computation of Product Cost using Direct Labour Hour rate Method

The rate has been computed as follows:

$$\frac{\text{Manufacturing overhead costs}}{\text{DirectLabour hours}} = \frac{₹8,75,000}{50,000} = ₹17.50 \text{ per hour.}$$

The company's overhead rate is ₹ 17.50 per hour if direct labour hour is used as a base for assigning overhead costs.

Using this rate, the cost to manufacture each of the products is given below:

	Product	
	A	B
Direct Materials	₹25	₹15
Direct labour	10	10
Manufacturing overhead (2 hours x 17.50)	35	35
Total Cost	70	60

(ii) Computation of Product cost using Activity-based costing

(a) Overhead rates by Activity

Activity	Traceable cost Ia)	Number of events or transactions (b)		Rate per event or transaction (a) ÷ Ib)

Machine Set-ups	₹ 2,30,000	₹ 5,000	₹ 46 per set-up
Quality Inspections	1,60,000	8,000	20 per inspection
Production Orders	81,000	600	135 per order
Machine Hours worked	3,14,000	40,000	7.85 per hour
Material receipts	90,000	750	120 per receipt

(b) Overhead Cost per Unit of Product

Details	Product A		Product B	
	Events or Transactions	Amount ₹	Events or Transactions	Amount ₹
Machine set-ups (at ₹ 46 per set-up)	3,000	1,38,000	2,000	92,000
Quality inspections (at ₹ 20 per inspection)	5,000	1,00,000	3,000	60,000
Production orders (at ₹ 135 per order)	200	27,000	400	54,000
Machine-hours worked (at ₹ 7.85 per hour)	12,000	94,200	28,000	2,19,800
Material receipts (at ₹ 120 per receipt)	150	18,000	600	72,000
Total overhead cost assigned (a)		3,77,200		4,97,800
No. of units produced (b)		5,000		20,000
Overhead cost per units (a ÷ b)		₹75.44		₹24.89

(c) Computation of Total Cost of Products

	Activity Base		Direct Labour Base	
	Product A	Product B	Product A	Product B
Direct Materials	25.00	15.00	25.00	15.00
Direct labour	10.00	10.00	10.00	10.00
Manufacturing overhead	75.44	24.89	35.00	35.00
Total Cost of Manufacture	110.44	49.89	70.00	60.00

Comments: The statements show that in case the company adopts direct labour rate method for absorption of overhead costs, the amount of overheads charged would be ₹ 35 per unit for each product. In other words, the overhead cost is the same for both the products in spite of the fact that they have widely different costs driven activities. For instance, the company recorded 5,000 machine set-ups during the year, of which 3,000 set- ups were traceable to Product A while 2,000 set-ups were traceable to Product B. In case of materials receipt, the position is just the reverse. 600 receipts are traceable to product B while only 150 materials receipts are traceable to product A. It is therefore; appropriate to use activity-based costing for charging overhead costs to prevent any distortions in assigning or attributing costs to products. The cost statement for products shows that as per activity-based costing, the manufacturing overheads charged to product A are almost three times that of the manufacturing overheads charged to product B.

(b) What is the concept of learning curve and state how relevant is the same in managing costing? [1+3]

Answer:

The first time when any operation is carried out it takes little bit of extra time and the time taken goes on decreasing during the subsequent operations as the workmen become more and more familiar to the operations. This process of decline in time taken will continue for some time and the labour cost per unit comes down. This is the concept of working out the learning curve.

The learning curve is relevant in managing cost due to the following reasons:-

(i) It is useful in analysis of cost-volume-profit relationship.

(ii) It is useful in preparing budgeting, price fixation and profit planning.
(iii) It is useful in negotiating price with a customer based on volume of off take.

(c) Titan Engineering is operating at 70% capacity and presents the following information:

Break-even point	**₹200 core**
P/V ratio	**40%**
Margin of safety	**₹50 core.**

Titan's management has decided to increase production to 95% capacity level with the following modifications:

(i) The selling price will be reduced by 8%
(ii) The variable cost will be reduced by 5% on sales
(iii) The fixed cost will increase by ₹20 crore, including depreciation on additions but excluding interest on additional capital.
(iv) Additional capital of ₹50 crore will be needed for capital expenditure and working capital.

Required:

(a) Indicate the sales figures, with the working, that will needed to earn ₹10 crore over and above the present profit and also meet 20% interest on the additional capital. [3]
(b) What will be the revised
(i) Break-even point
(ii) P/V ratio
(iii) Margin of safety? [1+1+1=3]

Answer:

(a) Working notes:

Total sales = Break–even sales + margin of safety
= ₹ 200 cr + ₹50 cr = ₹250 cr.

P/V ratio = 40%
Variable cost = 60% of sales = ₹250 x 60% = ₹150 cr.
Fixed cost = Break–even sales x P/V ratio 40% = ₹80 Cr.
Profit = Total sales – Total cost = ₹250 cr. – ₹230 cr. = [₹20 cr.]
Interest @ 20% on additional capital of ₹50 cr = ₹10 cr.
Assuming the present selling price to be ₹100, the revised selling price will be ₹92 and the variable cost will be 55% of ₹92 or ₹50.60, giving the revised contribution of ₹41.40. The new P/V ratio will then be (₹41.40/₹92.00) x 100 = 45%.
In this context, the company wants sufficient sales that will cover the revised fixed cost and yield a profit of ₹30 (Present 20 plus additional 10) cr.
Hence, the revised sales for the company should be ₹ (110 + 30) ÷ 45% = ₹311.11 cr.

(b) (ii) the revised P/V ratio, as worked under (a) above = 45%;
(i) the revised Break – even point = ₹110 cr ÷ 45% = ₹244.44 cr.;
(iii) the revised margin of safety = ₹311.11 – ₹244.44 = ₹66.67 cr.

9. (a) Find the forecast for various years using Mean, Naïve, Linear Trend, Non-Linear Trend forecast from the following data.

Year	2008	2009	2010	2011	2012	2013
Sales	24.50	25.90	27.60	30.10	34.80	41.50

(₹ in Crores)						

[2.5×4=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** $Y = a + bX + cX^2$ $Y = 24.87 – 0.17X + 0.69X^2$
2008	24.50	24.50 + 25.90 + 27.60 + 30.10 + 34.80 + 41.50 = 184.40 ÷6 = 30.73	-	22.58	24.87
2009	25.90		24.50	22.58 + 3.26 (1) = 25.84	24.87 - 0.17 (1) + 0.69 $(1)^2$= 25.39
2010	27.60		25.90	22.58 + 3.26 (2) = 29.10	24.87 + 0.17(2) + 0.69 $(2)^2$ = 27.29
2011	30.10		27.60	22.58 + 3.26(3) = 32.36	24.87 + 0.17 (3) + 0.69 $(3)^2$ = 30.57
2012	34.80		30.10	22.58 + 3.26 (4) = 35.62	24.87 + 0.17 (4) + 0.69 $(4)^2$ = 35.23
2013	41.50		34.80	22.58 + 3.26 (5) = 38.88	24.87 + 0.17 (5) + 0.69 $(5)^2$ = 41.27

Working Note:

Linear Forecast and Non – Linear Forecast: Origin Year = 2008

Year	Y	X	Xy	X^2	X^2y	X^3	X^4
2008	24.50	-	-	-	-	-	-
2009	25.90	1	25.90	1	25.90	1	1
2010	27.60	2	55.20	4	110.40	8	16
2011	30.10	3	90.30	9	270.90	27	81
2012	34.80	4	139.20	16	556.80	64	256
2013	41.50	5	207.50	25	1037.50	125	625
Total	**$\Sigma y = 184.40$**	**$\Sigma x = 15$**	**$\Sigma xy = 518.10$**	**$\Sigma x^2 = 55$**	**$\Sigma x^2y = 2001.50$**	**$\Sigma x^3 = 225$**	**$\Sigma x^4 = 979$**

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 2008)	

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 $Y = 24.87 – 0.17x + 0.69 x^2$ (origin year is 2008)		

(b) 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. [8+2]

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.