FINAL EXAMINATION

GROUP III

(SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS

DECEMBER 2015

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

SECTION A (50 marks)

(Business Strategy)

Questions Nos. 1 and 2 are *compulsory and each carrying 10 marks.*

Answer* any two *questions from the rest in this section, each carrying 15 marks.

1. **(a) What is meant by the 'Business Vision Statement' and 'Company Mission Statement'?**

(b) The Indian Pharmaceutical Industry is one of the most attractive investment destinations in the world. With ever increasing returns, lowering risks and anticipated multifold growth, investors are more interested in this industry than ever before. Since 2000, the Pharma sector has attracted one of the highest Foreign Direct Investment (FDI) inflows of approximately $12,60,089 million (April 2000 to September 2014). The Indian Pharma Industry has cross a long way and made significant progress in infrastructure development and technical as well as R&D capabilities. With the integration of the Indian Pharma market with the global market, new issues are being faced and tackled by the industry. The trends of increased foreign interest in the market and increased investments in R&D are expected to stay. With numerous strengths and a growing consumer class, the Pharma Industry in India may phase certain legacy and new issues, but it is expected to grow multifold and continue to be an attractive investment destination.

In the light of the above background:
Analyse the Indian Pharma Industry using the dyadic (pair-wise) approach of competitive dynamics of Michael Porter's conventional industry structure. **4+6**

Answer:

1. **(a)** A vision statement is sometimes called a picture of a company in the future but it's so much more than that. Your vision statement is the company's inspiration, the framework for all the company's strategic planning. A vision statement may apply to an entire

company or to a single division of that company. Whether for all or part of an organization, the vision statement answers the question:

"Where do you want to go?"

A mission statement is a statement that defines the essence or purpose of a company-what it stands for i.e., what broad products or services it intends to offer customers. A mission statement, defines:

What an organization is?

Why it exists?

What reasons for being?

At a minimum company's mission statement should define who the company's primary customers are, identify the products and services the company produce, and describe the geographical location in which the company operates.
The mission statement reflects every facet of the company's business: the range and nature of the products the company offer, pricing quality, service, market place position, growth potential, use of technology, relationship with the customers, employee, suppliers , competitors and the community.

The mission statement ensures some transparency for investors and employees.
While a business must continually adapt to its competitive environment, there are certain core ideas that remain relatively steady and provide guidance in the process of strategic decision making. These unchanging ideas from the business vision and are expressed in the company mission statement.

(b) Competitive dynamics is the analysis of competition of the action and response level to predict how a firm will act or react against opponents. The dyadic or pair-wise approach of competitive dynamics makes possible focused analysis that complements Michael Porter's conventional industry structure and its extension, the strategic group approach. Obtaining a good overview and good understanding of an industry and a given company's strategic position in a competitive landscape can be vital for positioning a business or determining the long-term outcome of competitive rivalry. When analyzing the competitive dynamics of any industry initially look at what are the risks of someone else moving into the market and evaluate whether there are any barriers to entity in terms of e.g. Brand loyalty, vast amounts of capital needed, limited distribution access or may be absolute cost advantage.

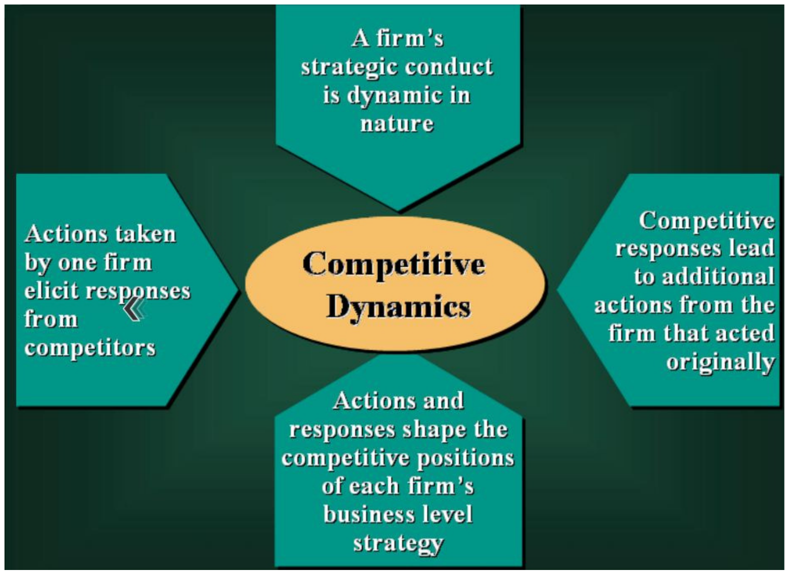
Secondly, look at whether the buyers in the govern industry has any specific bargaining power which could be the case if e.g. there only are a limited number of big powerful buyers or incase there are many substitute products.

Third, look at the potential risk of a substitute product entering the market.

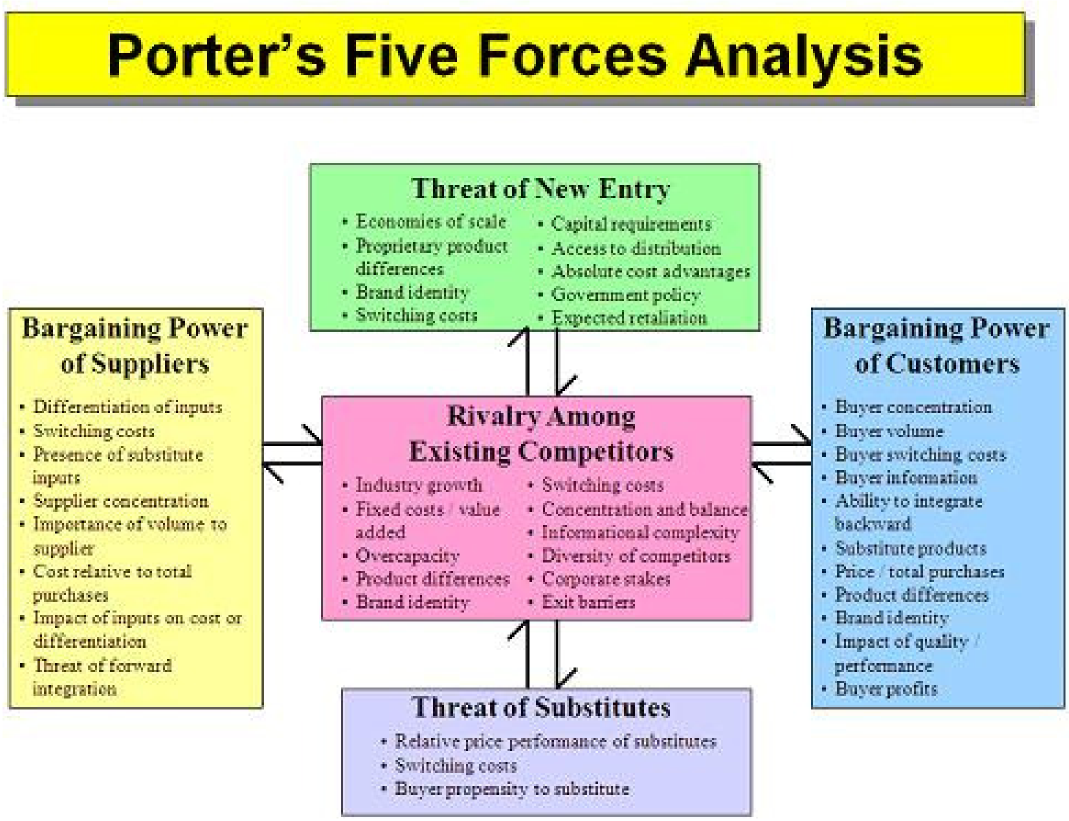
Fourth, evaluate the bargaining power of suppliers by looking at the number of suppliers and their potential for switching production to something else or finding another buyer.

Fifth, look at the competitive rivalry among the companies in your industry.

Together the risk and competitiveness associated with these five dimensions tells us how competitive a given industry is and how well a given company is positioned in that industry as well as where the potential pitfalls or opportunities are.



5 Force Model for Pharmaceutical Industry in India.



2. Ola Cabs has acquired its similar rival in the taxi-aggregate space, TaxiForSure, in a $200 million (` 1,200 crores approx) cash and equity arrangement. This is the first major acquisition in the taxi-aggregate space in India. Ola Cabs, already a leader in the personal transportation market with a valuation exceeding $1 billion (` 6,000 crores approx) and over 1,00,000 vehicles on its platform, will become a stronger entity through TaxiForSure's operator-led model. The later operates in 47 cities (approx) in India, with at least 15,000 vehicles on its platform. Larger rivals Meru Cabs and Uber are on a discounting spree to corner as much market share as possible. Meru Cabs has fleet size of 15,000 and Uber is present in 11 cities, the second biggest geographical presence for the American transportation giant outside the US. After the merger, Ola Cabs and TaxiForSure will continue to operate as separate entities. TaxiForSure's leadership and 1,700 employees (approx) will continue to work with it, under Arvind Singhal, CEO (earlier the Chief Operating Officer of the same company).

From the above background:

(a) Analyse the acquisition process of TaxiForSure by Ola Cabs.

(b) What strategic role the Management Accountant of Ola Cabs can play in this kind of acquisition? 5+5

Answer:

2. (a) There is significant complementary value that this acquisition adds both on the supply and demand side for OLA and TaxiForSure, OLA said. It added, "The later follows a different model of supply and distribution by working with cab operators, while OLA works with driver-entrepreneurs". OLA founded in 2011, is one of the most vibrant startups from India. TaxiForSure has in the past also focused heavily on the economy segment of cab consumer, with innovative offerings like Tata Nanos as part of their fleet and ` 49 as base fairs.

The acquisition process is often viewed for analytical purposes as a five stage procedure. These stages have been designated as:

(i) Goal (and strategy) Definition.
(ii) Selection and review of targets.
(iii) Forecast evaluation.
(iv) Analysis
(v) Management review and decisions
(vi) Negotiating the acquisition

(b) The Management Accountant is in a position to contribute his expertise in the analysis of acquisition strategy. The need to determine whether acquisition or internal growth is more efficient in reaching long term goals requires accounting expertise and studied analysis of each company's situation. In certain instances, synergies may be obtained or developed which may result in creating and even more advantageous position for the acquiring company. The management account should be poised to provide insight into the determination of an appropriate strategy during the various stages of analysis from the defining of objectives to the integration of the companies, if a merger is consummated.

3. (a) Define the term 'Corporate Strategy.'

(b) Mention the steps in 'Strategic Planning' process.

(c) Some people in the organization resort to political maneuvers for their own personal advantage. — Discuss the different individual and organizational factors that contribute to political behavior. 2+4+9

Answer:

3. (a) Corporate strategy defines the nature and range of business a farm intends to operates, for example a tobacco company's move from cigarettes to beer and then soft drinks are the example of corporate strategy decisions. To illustrate further, adapting 'synergy' as one of the key sources of competitive advantage is a strategy at the corporate level.

At the most basic level corporate strategy deals with the following question:
What businesses should we be in?
Whereas business strategy addresses the following question:
How should we compete in this business?

(b) A systematic approach to formalizing the strategic plans consists of the following steps:

I. Mission and objectives - the mission statement describes the company's business vision, including the unchanging values and purpose of the farm and forward - looking visionary goals that guide the pursuit of the future opportunities. The farms leaders can define measurable financial and strategic objectives.

II. Environmental scanning - It includes the following components:
   (i) Internal analysis of the farm
   (ii) Analysis of the farm's industry (task environment)
   (iii) External macro environment (PEST analysis)

III. Strategy formulation - given the information from the environmental scan, the farm should match its strength to the opportunities that it has identified, while addressing its weakness and external threats.

IV. Strategy implementation- The selected strategy is implemented by means of programmes budget and procedures. Implementation involves organization of the farm's resources and motivation of the staffs to achieve objectives.

V. Evaluation and control- The implementation of the strategy must be monitored and adjustments made as needed. Evaluation and control consists of the following steps:
   (i) Define parameters to be measured.
   (ii) Define target values for those parameters.
   (iii) Perform measurements
   (iv) Compare measured results to the pre-defined standard
   (v) Make necessary changes

VI. Disagreements that prevent rational decision making

(c) A number of individual and organizational factors contribute to political behavior

(i) Pyramid- shaped organization structure — It concentrates powers at the top .Each successive layer on the organization chart has less power than the layer above. At the very bottom of the organization, workers have virtually no power.

(ii) Subjective standard of performance — People often resort to organizational politics because they do not believe that the organization has an objective and fair way of judging their performance and suitability for promotion. Similarly, when managers have no objective way of differentiating effective people from the less effective, they will resort for favouritism.

(iii) Environmental uncertainty and turbulence - When people operate in an unstable and unpredictable environment, they tend to behave politically. They rely on organizational politics to create a favourable impression because uncertainty makes it difficult to determine what they should really be accomplishing. The uncertainty, turbulence and insecurity created by corporate mergers or downsizing is a major contributor to office politics.

(iv) Emotional insecurity — Some people resort to political maneuvers to ingratiate themselves with superiors because they lack confidence in their talents and skills.

(v) Manipulative tendencies - Some people engage in political behavior because they want to manipulate others, sometimes for their own personal interest. Disagreements that prevent rational decision making - Many executives' attempts, to use rational criterion when making major decisions, but rational decision making is constrained by major disagreements over what the organization should be doing. Unless strategy and goals are shared strongly among key organizational members, political motivation is inevitable in organizational decision making.

4. (a) What are the necessities of 'Environmental Analysis and Diagnosis' in managerial decision?

(b) What is meant by the term 'Strategic Group Analysis' (SGA)? Give four examples of SGA.

(c) What are the steps to be followed in Porter's Generic Business Level Strategy? 5+(3+2)+5

Answer:

4. (a) The importance of Environmental Analysis and Diagnosis (EAD) lies in its usefulness for evaluating the present strategy setting objectives and formulating future strategies. Farms which systematically analyzed and diagnose the environment are more effective than are those which don't so EAD has following importance:

(i) The objectives of the business are to be modified with the changes in the social, economic political, business and industrial condition etc. Thus it is very important to understand the nature of the environment and its dynamics and to be aware of those environmental variables to which the firm is most sensitive.

(ii) It helps to ascertain the opportunities for and threats to the organization.

(iii) By giving information timely, it helps the top level management to save their valuable time.

(iv) It helps the strategist to develop a plan for preventing threats and for turning threat to the firm's opportunities.

(v) It helps to ascertain the risk involve in trying to take the advantage of opportunities.

(vi) By EAD most of the future environment can be anticipated and their by manager can concentrates on those events which have greater impact on organization and hence managerial decisions are likely to be better.

(b) According to Porter, a strategic group is the group of firms in an industry following the same or similar strategy along the strategic dimension. It is a set of business units or firms that pursue similar strategies with similar resources. Strategic groups are conceptually define clusters of competitors that shares similar strategies and, therefore, compete more directly with one another than with other firms in the same industry. It is concepts used in strategic management that groups companies within an industry that have similar business models or similar combinations of strategies.

Examples of the SGA: (any four)
Extent of product or service diversity
Extent of geographic coverage
Number of market segment served
Distribution channels used
Extent of branding
Marketing effort
Degree of vertical integration
Service quality
Pricing policy

(c) The following steps are to be followed in Porter's generic business level strategy:
Step I: For each generic strategy carry out a SWOT analysis of the firms strength and weakness and the opportunities and threats. Having done this it may be clear that the organization is unlikely to be able to make a success of some of the generic strategies.
Step II: Use Five Forces Analysis to understand the nature of the industry
Step III: Compare the SWOT analysis of the viable strategic options with the results of Five Forces Analysis. For each strategic option, one should ask himself how he could use the strategy to:
- Reduce or manage the supplier power
- Reduce or manage buyer / customer power
- Come out on top of the competitive rivalry
- Reduce or eliminate the threat of substitution
- Reduce or eliminate the threat of new entity

5. (a) State the importance of 'Corporate Portfolio Analysis'.
(b) Mention the problems in using BCG Matrix.
(c) Write important three motives of merger of business organizations. 4+5+6

Answer:

5. (a) Corporate portfolio analysis is used when an organization's corporate strategy involves a number of businesses. When the company is in more than one business, it can select more than one strategic alternative depending upon demand of the situation prevailing in the different portfolios. It is necessary to analysis the position of different business of the business house which is done by corporate portfolio analysis.
Corporate portfolio analysis is an analytical tool which views a corporation as a basket or portfolio of products or business units to be managed for the best possible returns.

The following aims of portfolio analysis are noted:

(i) To analyze its current business portfolio and decide which business should receive more or less investment.
(ii) To develop growth strategies, for adding new business to the portfolio.
(iii) To decide which business should not longer be retained.

(b) The BCG matrix is criticized for the following reasons:
(i) It does not talk about profitability at all.
(ii) It fails to correctly define market share and market growth.
(iii) It ignores competition factors and trends in markets.
(iv) It considers only two factors viz. market growth rate and market share, ignoring all other factors. Market growth is not the only indicator for attractiveness of the market and a high market share doesn't necessarily lead to profitability all the time.
(v) It doesn't say how long a product will continue in each phase.
(vi) It fails to consider the globalization factors.
(vii) It encourages strategy development for general use rather than specific criteria.
(viii) It implies assumptions about mechanism of corporate financing and market behavior that are either unnecessary or false.
(ix) It focuses on cash flow, whereas organizations may be more interested in ROI.
(x) It neglects small competitors that have fast growing market shares.
(xi) It overlooks other important strategic factors that are a function of the external competitive environment.
(xii) It does not provide direct assistance in company with different businesses in terms of investment opportunities,

(xiii) It does not depict the position of business that are about to emerge as winner because the product is entering the takeoff stage.
(xiv) It fails to consider that, a business with a low market share can be profitable too.
(xv) A high market share does not necessarily lead to profitability all the time,
(xvi) Market growth is not the only indicator for attractiveness of a market,
(xvii) It does not offer guidance for inter unit comparisons.
(xviii) An SBUs profitability, cash flow and industry attractiveness not always be closely related to market share and growth rate.

(c) The following are the three important motives of merger of business organizations:

(i) Strategic motives: It contains the following
Expansion and growth through merger, dealing with entry of MNCs, economies of scale, synergy, backward and forward integration, new product entity, new market entity, risk reduction of the share holders and balancing product cycle for compensating the boom and doom in a product cycle.

(ii) Organizational motives: It contains the following:
Ego satisfaction, retention of managerial talent and removal of inefficient management from an organization.

(iii) Financial motives: It contains the following
Tax planning for set off and carry forward of loss, revival of sick units, increase the PE ratio and easily rising of capital.

SECTION B (50 marks)
(Strategic Cost Management)

Questions Nos. 6 and 7 are *compulsory and carrying 10 marks.*
Answer* any two *questions from the rest in this section, each carrying 15 marks.

6. (a) What are the pre-requisites for a successful 'Benchmarking'?

(b) India is a huge magnet for attracting foreign patients for medical treatments. With general tourism on the rise, it is estimated that the volume of medical tourists worldwide could reach up to 5 million by 2016, attracting additional visitors to the country. Medical tourist, more broadly health and wellness tourism, refers to the industry in which people from across the globe travel to other country to get medical, dental and surgical care and at the same time, visit the local attractions of the country. Medical Tourism market is estimated to be valued at $4 billion. Health care tourism has been a key growth sector for more than a decade. Growing insurance market, strong pharmaceutical industry, cheap international travel and quality health care are increasingly making India a preferred tourist destination. India hosts about 1.2 million tourists from countries such as US, UK and Canada in addition to visitors from neighbouring countries like Bangladesh, Nepal, Sri Lanka and China. Government estimates that the growth of health-related services will be more than 5% for the next 10 years and that should further attract more such visitors. Major corporations such as TATA, Fortis, Max, Wockhardt, Apollo Hospitals etc. have made significant investments in setting up modern chain of hospitals and tourism-related services to cater to the new brand of visitors from abroad. While all trends point towards an increasing demand for medical services in India, some key factors will determine whether medical tounsm become India's next crown jewel, like our Information Technology Industry. Here's a list of some factors: Infrastructure investment by the government, Reducing barriers for visiting India for medical purposes, Raise

quality standards to meet Western providers and market health tourism in Western countries.

In the above perspective:
How Activity Based Cost Management (ABM) can help hospitals and health-care providers to improve the quality and efficiency of Medical Tourism in India? 4+6

Answer:

6. **(a)** The following are the prerequisites for successful benchmarking:
   (i) Commitment: Senior managers should support benchmarking fully and must be committed to continuous improvements.
   (ii) Clarity of objectives: The objectives should the clearly defined at the preliminary stage itself.
   (iii) Appropriate scope: The scope of the work should be appropriate in the light of the objectives, resources, time available and the experience level of those involved.
   (iv) Resources: Sufficient resources must be available to complete projects within in the required timescale.
   (v) Skills: Benchmarking team should have appropriate skills and competencies.
   (vi) Communication: Stakeholders and all staff and the representatives are to be kept informed of the reasons for benchmarking.

   (b) Hospital has usually very complex structure of outputs (products), customer, performed activities and financial flows, than an ordinary manufacturing enterprise. The setting the appropriate cost objects, suitable structure of activities and relevant and simple cost drivers requires the detailed further studies. Ultimate objective of the research in this area should be defining the general methodology for the Activity Based Cost Management (ABM) application on the organization in wide level. Deeper level of knowledge in the area could facilitate the hospital managers to use the limited resources more effectively and save the increasing costs of healthcare services.
   A powerful tool for measuring performance, ABM is used to identify, describe, assign costs to, and report on agency operations. A more accurate cost management system than traditional cost accounting; ABM identifies opportunities to improve business process effectiveness and efficiency by determining the 'true cost' of a product or service. Activity based cost management is a method for developing cost estimates in which the project is subdivided into discreet, quantifiable activities or a work unit.

7. **(a) Classify the following items under appropriate categories of 'Quality Costs', viz., Prevention Costs, Appraisal Costs, Internal Failure Costs and External Failure Costs:**
   (i) Quality engineering;
   (ii) Product acceptance;
   (iii) Re-inspection;
   (iv) Product liability;
   (v) Field testing;
   (vi) Design review;
   (vii) Continuing supplier verification;
   (viii) Warranties;
   (ix) Quality training;
   (x) Scrap.

   (b) What do you understand by the term 'Strategic Positioning'?

(c) State the different decisions which are taken at different levels of an organization's hierarchy. **5+3+2**

Answer:

7. (a)

Prevention costs	Appraisal cost	Internal Failure cost	External failure cost
Quality engineering, Design review, Quality training	Product acceptance, Field testing, Continuing supplier verification	Re-inspection, Scrap	Product liability, Warranties

(b) The traditional dimensions of competition (innovation, price, product features, services etc.) still yield a competitive advantage, but only to the few firms that can carry then off extremely well. Thus for example, INTEL, the computer chip maker, has been successful by being able to be an innovator. It gets new, more powerful, faster computer chips out into the market consistently than its competitors. As long as it is better than its rivals on innovation, it is likely to be successful. Thus, INTEL puts lots of energy and money into making sure that it continues to be a top innovator. That is its strategic position having more innovation strength than its competitors.

(c) Decisions are made at different levels in an organization's hierarchy:

(i) Strategic decision - Long term impact. They affect and shape the direction of the whole business. They are generally made by senior managers.

(ii) Tactical decisions - It helps to implement the strategy. They are usually made by middle management.

(iii) Operational decisions- It relates to the day to day running of the business. They are mainly routine operations and these are made by the middle or junior managers.

8. (a) Mention four important management applications of PERT and CPM.

(b) Tata Ltd., Manufactures Leather, Sponge and Fibre in three divisions. Its operating statement for 2014-2015 showing the performance of these divisions drawn for the use of management is reproduced below:

` in '000

Particulars	MANUFACTURING DIVISIONS			TOTAL
	Leather	Sponge	Fibre	
Sales Revenue (A)	1,600	1,200	1,200	4,000
Manufacturing Costs: Variable	1,200	700	680	2,580
Fixed (Traceable)	-----	100	20	120
(B)	1,200	800	700	2,700
Gross Profit (A - B) = C	400	400	500	1,300
Expenses:				
Administration	134	116	172	422
Selling	202	210	232	644
(D)	336	326	404	1,066
Net Income (C - D)	64	74	96	234
Division's Ranking	III	II	I	

Additional information

(I) Sales of Leather Division includes transferred to the Fibre division at its manufacturing

cost of ` 2,00,000.

(II) Common expenses of ` 1,30,000 and ` 1,00,000 on account of administration and selling respectively stand apportioned to these divisions at 10% of gross profit in case of administration and 2.5% of sales in case of selling expenses. Rest of ` 8,36,000 of the expenses are traceable to respective divisions.

The manager of the Leather Division is not satisfied with the above approach of presenting operating performance. In his opinion, his division is the best among all the divisions. He requests the management to prepare a revised operating statement using contribution approach and showing internal transfer at market price.

You are required to:

(i) Draw the revised operating statement using contribution approach and pricing the internal transfer at the market price.

(ii) Compute relevant ratios to show comparative profitability of these divisions and rank them in the light of your answer at (i) above. Further, offer your comments on the contention of the manager of Leather Division.

(iii) State why the contribution approach and pricing of internal transfer at the market price are more appropriate in realistic assessment of the performance of various divisions. 2+[5+(2+2+1)+3]

Answer:

8. (a) The following are the applications of PERT and CPM: (any four)

(i) Construction of buildings, bridges, high-ways, and irrigation projects etc.

(ii) Budget and auditing procedures,

(iii) Missile development programme,

(iv) Installation of a complex new instruments,

(v) R&D of a new product,

(vi) Organization of a big conference.

(vii) Preparation of bids and proposals for large projects such as multipurpose projects.

(viii) Maintenance and planning of oil refineries, ship repairs and other such large operations.

(ix) Development of new weapon system and new products and services.

(x) Manufacture and assembly of large items such as aeroplanes or ships.

(b) (i) Revised operating statement using contribution approach

(` '000)

Divisions:		Leather	Sponge	Fibre	Total
Sales Revenue	WN-1	1,680	1,200	1,200	4,080
Less : Variable Manufacturing costs	WN-2	1,200	700	760	2,660
Contribution:(A)		480	500	440	1,420
Traceable costs:					
Fixed Manufacturing costs			100	20	120
Administration expenses	WN-3	94	76	122	292
Selling expenses	WN-4	162	180	202	544
Total: (B)		256	356	344	956
Operating income (A-B)		224	144	96	464
Less: Common expenses (` 130+` 100)					230
Net income of the company					234

Working Note:

1. Computation of Sales Revenue of Leather division:

(` in '000)

Sales of Leather division to outside customers (` 1,600 – ` 200)	1,400
Less, variable manufacturing cost (` 1,200 – ` 200)	1,000
Mark-up of outside sale	400
Percentage of mark-up 40% i.e. (` 400/ ` 1,000) x ` 100	
Transfer price of Leather to Fiber division	280
Sales of Leather division to outside customers	1,400
Total	1,680

2. Computation Variable Manufacturing cost of Fiber division:
` 680 – ` 200 +` 280=` 760

3. Computation Traceable Administration Expenses:

(` in '000)

Divisions	Leather	Sponge	Fiber	Total
Administration expenses	134	116	172	422
Less: common expenses (10% of G.P.)	40	40	50	130
Traceable administration expenses	94	76	122	292

4. Computation of Traceable Selling Expenses:

(` in '000)

Divisions	Leather	Sponge	Fiber	Total
Selling expenses,	202	210	232	644
Less: common expenses (2.5% of sales)	40	30	30	100
Traceable selling expenses	162	180	202	544

(ii) Comparative profitability and ranking statement (based on contribution approach relevant ratios calculated by using figures of (i) part)

(` in '000)

Divisions	Leather	Sponge	Fiber
Contribution margin ratios in %)	28.57 (480/1680)x100	41.67 (500/1200)x100	36.67 (440/1200)x100
Ranking	III	I	II

Operating income (Ratio in %)	13.33 (224/1680)x100	12 (144/1200)x100	8 (96/122)x100
Ranking	I	II	III

Comment: The merger of leather division appears to be correct in raising objection over the approach used for presenting operating performance of three divisions for the year 2014-15. His division is the best among all, on the basis of operating income/sales ratio which is the highest in spite of its contribution margin ratio to be the lowest.

(iii) The use of contribution approach for reporting is more realistic for assessing the performance of various divisions as it considers variable and traceable costs only and avoids common costs while finding out profitability. This approach enables the management to rightly interpret the information.

Further, pricing of internal transfers at market price will give due credit to specific profit center i.e., transferor.

9. (a) What is the purpose of preparation of 'Lean Accounting'?

(b) What control process should be considered in 'Target Costing' project?

(c) A manufacturing company has the following production budget for November 2015:
Product A = 20,000 units and Product B = 40,000 units
A standard hour represents 10 units of A and 8 units of B.
Standard wage rate per hour is ` 0.50
During the month 7500 hours were paid for @ ` 0.60 per hour, which included 350 unproductive hours due to unbudgeted holidays as also loss of production of 250 units of Product-A due to machine breakdown.

Actual production for the month was 24,000 units of A and 38,000 units of B.

Calculate the following:
(i) Direct labour rate variance
(ii) Direct laoour idle time variance
(iii) Direct labour efficiency variance.
(iv) Direct labour total variance. **3+3+(1½ × 6)**

Answer:

9. (a) There are positive and negative reasons for using Lean Accounting. The positive reasons include the issues addressed in the "Vision for Lean Accounting". Lean Accounting provides:

(i) Provide accurate, timely and understandable information to motivate the lean transformation throughout the organization,
(ii) To eliminate waste from accounting processes while maintaining thorough financial control and fully comply with Generally Accepted Accounting Principles (GAAP),
(iii) Support the lean culture by motivating investment in people). Lean Accounting is nothing more than tracking inflow to outflow as measure of profitability,' which is governed by GAAP.

(b) Following three important control points should take care properly in all target costing projects:
(i) Identification of principal control point over the course of target costing programme.
(ii) Point of go/no go decision: If target costing is not reached, management retains power to abandon the design project. There comes a point, when actual performance is very close to expected performance in matter of cost incurrence.
(iii) Milestone can be in terms of timer (say one month) and/or points (say in design process) at which specific activities are completed.

(c)

Product	Production (units)	Per standard hours(units)	Standard hours
A	24000	10	2400
B	38000	8	4750
Total			7150

(i) Direct labour rate variance: (SR-AR) x AT= ` (0.50-0.60) x 7500=` 750 (A)
(ii) Direct labour idle time variance: Abnormal idle time x SR=375x0.50=` 187.50 (A)
(iii) Direct labour efficiency variance:
(ST-AT excluding abnormal Idle Time x SR= (7150-7125)x ` 0.50=` 12.50 (F)
(iv) Direct labour total variance:

Standard cost-7150 hours @ ` 0.50=	` 3,575
Actual cost-7500 hours @ ` 0.60=	` 4,500
Direct labour total variance	` 925 (A)

Note: Abnormal idle time-Unbudgeted holidays =	350 hours
Machine breakdown-(1/10) x 250 =	25 hours
	375 hours

10. (a) Mention four important Budget Ratios, which are used by the management to measure development from budgeted figure.

(b) A company makes two Products A and B. The cost of producing one unit of Product A and B are ` 60 and ` 80 respectively. As per the agreement, the company has to supply at least 200 units of Product B to its regular customers. One unit of Product A requires one machine hour, whereas, Product B has machine hours available abundantly within the company. Total machine hours available for Product A are 400 hours. One unit of each Product A and B requires one labour hour each and total of 500 labour hours are available. The company wants to minimize the cost of production by satisfying the given requirement. Formulate the problem as a Linear Programming problem.

(c) The following information of a project is given below:

Activity	(1-2)	(2-3)	(2-4)	(3-5)	(4-6)	(5-6)	(5-7)	(6-7)
Pessimistic Time (in weeks)	3	9	6	8	8	0	5	8
Most Likely Time (in weeks)	3	6	4	6	6	0	4	5
Optimistic Time (in weeks)	3	3	2	4	4	0	3	2

Required to:
(i) Draw the required Network.
(ii) Variance to each activity.
(iii) Critical Path and Expected Project Length.
(iv) The probability that the project will be completed in 23 weeks.

(Note: if there are two equal longest paths, the higher of the two variances would be considered).
[Given that the area under Standard Normal Curve between Z = 0 and Z = 1.92 is 0.9726]
2+3+[2+2+(2+2)+2]

Answer:

10. (a) Budget Ratios provide information about the performance level. The following important Budget Ratios are usually used by the management to measure development from budget: (any four)

(i) **Efficiency ratio:** Efficiency ratio summarizes the relationship between output expressed in standard hours and actual hours spent for that output.

(ii) **Activity ratio/Production volume ratio:** This ratio refers to the relationship between output expressed in terms of standard hours and the budgeted standard hours.

(iii) **Calendar ratio:** It refers to the relationship between actual number of working days in a period and the number of working days in the related budget period

(iv) **Actual capacity usage ratio:** This ratio refers to the relationship between actual number of working hours and the maximum possible number of working hours in a period as per budget

(v) **Actual usage of budgeted capacity ratio:** This ratio refers to the relationship between actual number of working hours and the budgeted number of working hours for that period

(vi) **Standard capacity usage ratio:** This ratio refers to the relationship between budgeted hours and maximum possible working hours in a budget period.

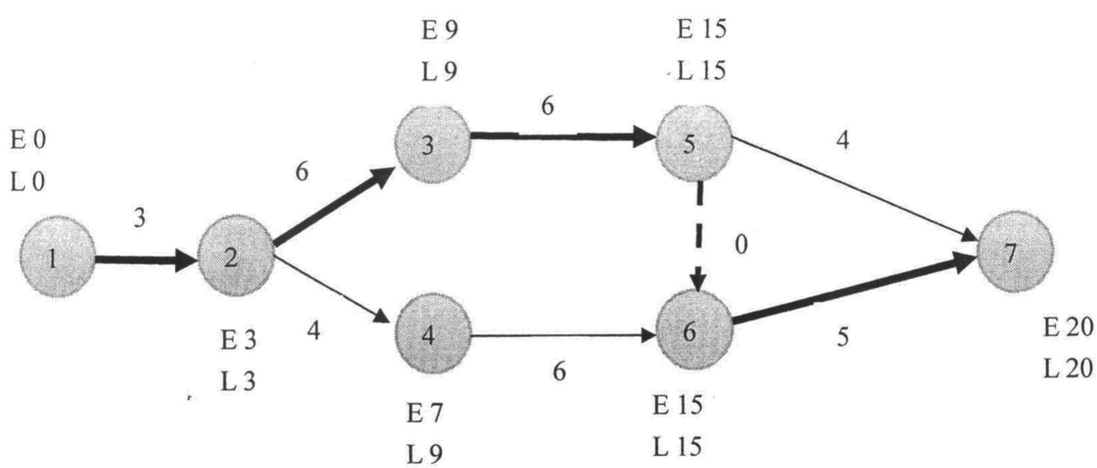
(b) By designating the number of units of products A and B to be manufactured as the decision variables the x_1 and x_2, the appropriate mathematical formulation of the given problem as linear programming is as follows:

Minimize (Cost of production) $Z= 60x_1 + 80 x_2$

Subject to the constraints:
$x_2 \geq 200$(Agreement constraint) Eq. 1
$x_1 \leq 400$ (Machine hours constraint)......Eq. 2
$x_1 + x_2 \leq 500$ (Labour hours constraint)...... Eq.3
$x_1 \geq 0$
$x_2 \geq 0$

The symbol ≥ means greater than or equal to, and condition (1) is also called an inequality constraint. Note that condition (1) is a mathematical inequality of the type (a requirement), as opposed to conditions (2) and (3), which are mathematically inequalities of the ≤ type (availability or limitations).

(c) (i) The required network is drawn below:



(ii) The expected time marked in the above network diagram for various activities is calculated in table below:

Activity	Times (in weeks)			Expected time (weeks)	Variance
	Optimistic (t_0)	Most like (t_m)	Pessimistic (t_p)	$t_e = \frac{t_0 + 4t_m + t_p}{6}$	$\left(\frac{t_p - t_0}{6}\right)^2$
1-2	3	3	3	3	0
2-3	3	6	9	6	1
2-4	2	4	6	4	4/9
3-5	4	6	8	6	4/9
4-6	4	6	8	6	4/9
5-6	0	0	0	0	0
5-7	3	4	5	4	1/9
6-7	2	5	8	5	1

Variances of each activity have been calculated in last column of the above table.

(iii) Critical path is given by 1-2-3-5-6-7 and the expected project length project length is 20 weeks.
Variance of the critical path = σ^2 = 0+1+4/9+0+1=22/9 = 2.444
Mean = μ =20 weeks

(iv) To calculate the probability of completing the project in 23 weeks, we will first calculate the normal Z as below:
P (X ≤ 23) = P (Z ≤ 1.92) = 0.9726 (from the Normal Table)
Thus, the probability that the project will be completed in 23 weeks is 97.26%.