Paper 15 - Business Strategy and Strategic Cost Management

The following table lists the learning objectives and the verbs that appear in the syllabus learning aims and examination questions:

	Learning objectives	Verbs used	Definition
LEVEL C	KNOWLEDGE What you are expected to know	List	Make a list of
		State	Express, fully or clearly, the details/facts
		Define	Give the exact meaning of
	COMPREHENSION What you are expected to understand	Describe	Communicate the key features of
		Distinguish	Highlight the differences between
		Explain	Make clear or intelligible/ state the meaning or purpose of
		Identity	Recognize, establish or select after consideration
		Illustrate	Use an example to describe or explain something
	APPLICATION How you are expected to apply your knowledge	Apply	Put to practical use
		Calculate	Ascertain or reckon mathematically
		Demonstrate	Prove with certainty or exhibit by practical means
		Prepare	Make or get ready for use
		Reconcile	Make or prove consistent/ compatible
		Solve	Find an answer to
		Tabulate	Arrange in a table
	ANALYSIS How you are expected to analyse the detail of what you have learned	Analyse	Examine in detail the structure of
		Categorise	Place into a defined class or division
		Compare and contrast	Show the similarities and/or differences between
		Construct	Build up or compile
		Prioritise	Place in order of priority or sequence for action
		Produce	Create or bring into existence
	SYNTHESIS How you are expected to utilize the information gathered to reach an optimum conclusion by a process of reasoning	Discuss	Examine in detail by argument
		Interpret	Translate into intelligible or familiar terms
		Decide	To solve or conclude
	EVALUATION How you are expected to use your learning to evaluate, make decisions or recommendations	Advise	Counsel, inform or notify
		Evaluate	Appraise or asses the value of
		Recommend	Propose a course of action

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This paper contains 4 questions. All questions are compulsory, subject to instruction provided against each questions. All workings must form part of your answer. Assumptions, if any, must be clearly indicated.

Full Marks: 100 **Time allowed: 3 hours**

1. Read the case and answer the following questions [20 marks]

Meters Limited is a company engaged in the designing, manufacturing, and marketing of instruments like speed meters, oil pressure gauges, and so on, that are fitted into two and four wheelers. Their current investment in assets is around ₹ 5 crores and their last year turnover was ₹ 15 crores, just adequate enough to breakeven. The company has been witnessing over the last couple of years, a fall in their market share prices since many customers are switching over to a new range of electronic instruments from the range of mechanical instruments that have been the mainstay of Meters Limited.

The Company has received a firm offer of cooperation from a competitor who is similarly placed in respect of product range. The offer implied the following:
(i) transfer of the manufacturing line from the competitor to Meters Limited;
(ii) manufacture of mechanical instruments by Meters Limited for the competitor to the latter's specifications and brand name; and
(iii) marketing by the competitor.

The benefits that will accrue to Meters Limited will be better utilization of its installed capacity and appropriate financial compensation for the manufacturing effort. The production manager of Meters Limited has welcomed the proposal and points out that it will enable the company to make profits. The sales manager is doubtful about the same since the demand for mechanical instruments in shrinking. The chief Executive is studying the offer.

(i) What is divestment strategy? Do you see it being practised in the given case? Explain. [2+3]
(ii) What is stability strategy? Should Meters Limited adopt it? [$2^1/_2$+$2^1/_2$]
(iii) What is expansion strategy? What are the implications for Meters Limited in case it is adopted? [3+3]
(iv) What are your suggestions to the Chief Executive? [4]

Answer:

(i) Divestment strategy involves retrenchment of some of the activities in a given business of the company or sell- out of some of the businesses. This strategy is largely followed in the following cases
Obsolescence of product/process
Business becoming unprofitable
High competition
Industry overcapacity
Retrenchment Strategy also includes turnaround of declining business operations.

I don’t believe this is being completely followed over here. The company is mainly planning a turnaround of business operation through manufacturing other organization’s products in order to better utilize the manufacturing capacity. However, it seems customers are switching from mechanical instruments to electronic instruments, so this strategy should not be viewed as turnaround of business operations or divestment strategy.

(ii) If a firm is opting for stability of business operations by staying in the same business, same product, market and functions, and firm normally maintains same levels of effort as at present, then it is known as stability strategy.
The main aim of this strategy is to enhance functional efficiencies, better deployment and utilization of resources.
Meters Limited should not adopt the stability strategy. In this strategy, Meters Limited will continue manufacturing the mechanical meters with improved utilization of capacity and reduced costs but we know that market is losing customers base for mechanical meters.

(iii) Expansion strategy is the most popular strategy and most of the business organizations opt for expansion strategy because this strategy prompts for the growth of business organizations. There are two key types of expansions strategy
(1) Intensifications
(2) Diversifications

Both of them are growth oriented strategies; the difference lies in the way by which the firm actually pursues the growth.

Intensification involves the following:

- Product Development
- Market Penetration
- Market Development

Diversification involves the following:

- Vertically integrated diversification
- Horizontally integrated diversification
- Concentric diversification
- Conglomerate diversification

Yes, company should adopt expansion strategy by adopting intensifications category. In intensification strategy, company can initially focus on product development i.e. developing new electronic instruments and then they can follow market penetration and market development.

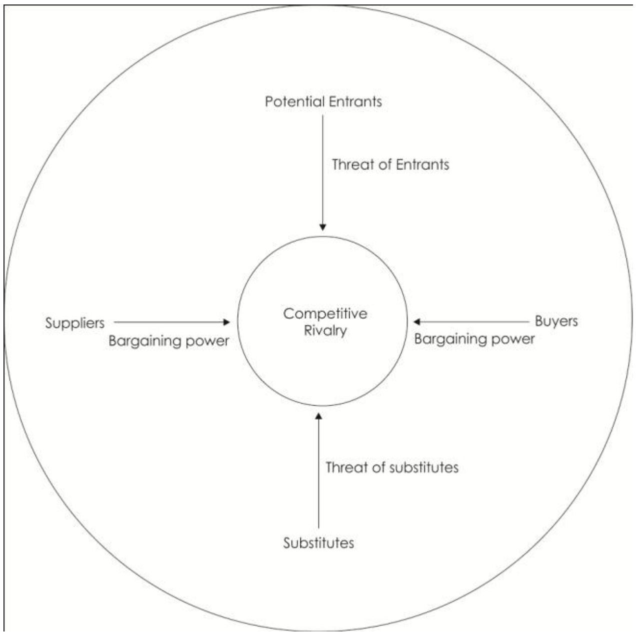
(iii) My suggestions to chief executive will be the following:
for the time being, till the time new products are developed, we can accept the offer of other organization to manufacture their products for better utilization of capacity but we have to be cautious about competition/sales of products in the same category and that should be properly laid out in the agreement. However, in the long-term, we should focus on new products developments and try to expand product range by including the manufacturing of electronic instruments.

2. Answer any two questions from (a), (b) and (c): [2 x 15 =30]

2. (a) (i) Porter's Model helps with the structural analysis of the environment. How does this model work? [10]
(ii) State the drawbacks of Vertical Integration. [5]

Answer:

(i) Porter's model is essentially a structural means of testing the competitive environment of an organization so as to provide a clear understanding of the forces at work. Porter argues that competition in an industry is rooted in its underlying economics, and competitive forces exist that go well beyond the established combatants in particular industry. The task of the strategist is to determine which of these forces are of the greatest importance to the organization. There are four key forces to be considered:



1- The Threat of Entry:

The threat of entry will depend in the extent to which there are barriers to entry (things stop the company to enter the market). Is it possible to the companies to enter particular market? From two prospects (1) you want to enter. (2) You are already in the market and trying to stop others to enter the market. These barriers are:

(a) Economies of scale: this require knowing the optimum scale of operation and also knowing how damage is going to be to operate below that level. It's difficult to assess economies of scale but it depends for some extent on how large is the market and how many competitors are there. EOS are the cost advantages that a business obtains due to expansion.
(b) The capital requirements of entry: how much capital you require? How you get particular resources to enter the area? It's connected to economies of scale. It's require involvement of the enormous capital expenditure to setup compete fully system.
(c) Product differentiation: (the product which is unique in the market) this may be as a result of strong brand image, product or service quality, efficiency of distribution. Differentiation will vary by industry.
(d) Access to distribution channels: production and distribution go together, if there is no channel of distribution so, you cannot enter the market.
(e) Cost disadvantages independent of size: to large extent these are to do with early entries into markets and the experience so gained. This phenomenon is usually known as the experience curve. The experience curve indicates that as the number of year's increase the cost of production will decrease.
(f) Legislation or government action: the government may intervene to prevent a company acquiring another or a license issued by a government agency may be required to operate in certain industry.

2- The Bargaining Power of Buyers and Suppliers:

Buyers and suppliers are influencing margins, the greater their power the more likely it is that margins will be low.

(a) Suppliers power is likely to be high when:
- There is concentration of suppliers rather than fragmental sources of supply.
- Switching cost is high from supplier to another, because manufacture processes are dependent on the specialist product of supply.
- There is possibility for the supplier to integrate forward.
- The suppliers' customers are of a little importance to the supplier, in which case the supplier is not likely to regard the long-term future of the customers as a particular importance.

(b) Buyers power is likely to be high when:
- There is concentration of buyers, if the volume purchase of buyers is high.
- There are alternatives sources of supply.
- If the components or material cost the buyer trying to purchase is high.
- If buyer integrate backward.

3- The Threat of Substitutes:

Substitution threat may take different forms; it might be from one product to another. Substitution may hold down or depress margins. It concerns with the danger that substitute may encroach upon an organization activities as well as steps can be taken to minimize the risk of such substitution, perhaps through differentiation or with low cost profiles. And, more positively, is there the possibility that one's own products could find new markets as substitutes for some other product.

4- The Extent of Competitive Rivalry (The Rivalry Against Existing Competitors):

Competitors concerned with the degree of rivalry between themselves in their own industry. The degree of rivalry or the factors affect the intensity of competing in the market are:
- The extent to which competitors in the industry are in balance. Whatever their number, where competitors are of roughly equal size there is the danger of intense competition as one competitor attempts to gain dominance over another.
- A market in slow growth: particularly one which is entering its maturity stage and competitors are keen to establish themselves as market leaders - is likely to be highly competitive.
- High fixed cost in an industry, perhaps through high capital intensity or high costs of storage, is likely to result in competitors cutting prices to obtain the turnover required (price wars and very low margin operation).
- Importance of product differentiation. If a product or service is not differentiated then there is little to stop customers switching between competitors.
- The condition or status of extra capacity. If the addition of extra capacity is in large increments then the competitors making such an addition is likely to create at least short-term over capacity and increased competition.
- The degree of the exit barriers to an industry. Exit barriers might be high for a variety of reasons; they may vary from a high investment in non-transferable fixed assets, to the reliance on one product to be credible within a market sector even if the product itself makes heavy losses.

5- The Significance of Identifying Market Segments:

As part of structural analysis it is useful to identify how the market may segmented and which competitors are concentrating on which segments, and that is because certain segments are more competitive than others or by segmenting the market in a particular way new opportunities for product segmentation emerge, or because some segments are growing and others are not.

(ii) Drawbacks of Vertical Integration:

While some of the benefits of vertical integration can be quite attractive to the firm, the drawbacks may negate any potential gains. Vertical integration potentially has the following disadvantages:

- Capacity balancing issues. For example, the firm may need to build excess upstream capacity to ensure that its downstream operations have sufficient supply under all demand conditions.
- Potentially higher costs due to low efficiencies resulting from lack of supplier competition.
- Decreased flexibility due to previous upstream or downstream investments. (Note however, that flexibility to coordinate vertically-related activities may increase.)
- Decreased ability to increase product variety if significant in-house development is required.
- Developing new core competencies may compromise existing competencies.
- Increased bureaucratic costs.

2. (b) (i) Describe the barrier of Strategic Evaluation. [4]
(ii) Enumerate the characteristic of strategic decisions. [3]
(iii) Discuss the problems in using the BCG Matrix. [8]

Answer:

(i) There are three types of barriers in evaluation the limits of control, difficulties in measurement, and motivational problems.

(A) **The limits of Control**: It is not easy for strategists to decide the limits of control. Too much control prevents mangers from taking initiative, experiment with their creative ideas and gain through calculated risk taking. On the other hand, when there is very little control people tend to go off the hook, waste resources without any fear of punishment and work at cross purposes – putting a big question mark on the very survival of the firm.

(B) **Difficulties in Measurement:** It is not easy to find measurement techniques that are valid and reliable. Validity is the extent to which an instrument measures what it intends to measure (for example measuring the speed and accuracy of a typist in a typing test). Reliability is the confidence that an indicator will measure the same thing every time. In the absence of reliability and validity, the control system gets distorted. It may fail to measure results uniformly or measure attributes that are not required to be measured. When people are not confident about the measures used for judgment, they resists the whole process vehemently.

(C) **Motivational Problems**: Having taken a position while formulating and implementing the strategy, strategists are often reluctant to admit their mistakes when things go off the track. They tend to shift the blame on others. This may also prevent them from hiving off unprofitable divisions, reversing wrong decisions and go in search of more viable alternations quickly.

(ii) Strategic decision concept is based on strategy which is a major action in an organization. Strategic decision making is a major choice of actions concerning allocation of resource and contribution to the achievement of organizational objectives. It has following characteristics:

(A) The strategic decision affects the whole part of organization and largely relates to the responsibilities of senior management.
(B) It contributes directly to the achievement of objectives.
(C) It has normally three elements –
  (1) Action element, which specifies the work to be done.
  (2) Result element, which specifies the desired result to be achieved through the implementation of decision.
  (3) Commitment element, which directs to undertake the course of action, makes personnel involvement for attaining the objective and allocates resources to them.

It is normally a non programmed decision which is made under the condition of partial ignorance.

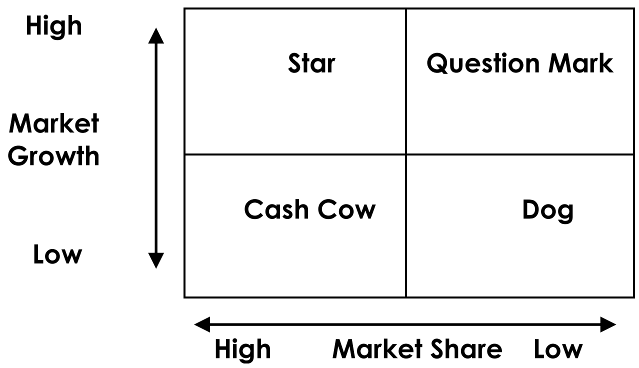
(iii) The BCG matrix is criticized for the following reasons:

(A) It does not talk about profitability at all.
(B) It fails to correctly define market share and market growth.
(C) It ignores competition factors and trends in markets.
(D) It considers only two factors viz., market growth rate and market share, ignoring all other factors.
(E) It does not say how long a product will continue in each phase.
(F) It fails to consider globalization factor, where markets are not limited to a particular area or place.
(G) It encourages strategy development for general use rather than specific criteria.
(H) It implies assumptions about mechanism of corporate financing and market behavior that are either unnecessary or false.
(I) It overlooks other important strategic factors that are a function of the external competitive environment.
(J) It does not provide direct assistance in company with different businesses in terms of investment opportunities.
(K) It focus is on cash flow, whereas organizations may be more interested in ROI.
(L) It does not depict the position of business that are about to emerge as winner because the product is entering the takeoff stage.
(M) It neglects small competitors that have fast growing market shares.
(N) It fails to consider that, a business with a low market share can be profitable too.
(O) A high market share does not necessarily lead to profitability all the time,
(P) Market growth is not the only indicator for attractiveness of a market.
(Q) It does not offer guidance for inter unit comparisons.
(R) A SBUs profitability, cash flow and industry attractiveness not always be closely related to market share and growth rate.

2. (c) (i) Explain about the BCG Matrix. [10]
(ii) Distinguish between competitive advantage and core competency. [5]

Answer:

The Boston Consulting Group (BCG) have developed a matrix, based on empirical research, which analyses products and businesses by market share and market growth. This growth/ share matrix for the classification of products into cash cows, rising stars and questions marks is known as the Boston classification.



a. **Stars** are products with a high share of a high growth, market. In the short term, these require capital expenditure, possibly in excess of the cash they generate, in order to maintain their market position, but promise high returns in the future.

b. In due course, however, stars will become **cash cows**, with a high share of a low-growth market. Cash cows need very little capital expenditure and generate high levels of cash income. The important strategic feature cash cows are that they are generating high cash returns, which can be used to finance the stars.

c. A **question mark** (sometimes called **problem child**) is a product in a high growth market, but has a low market share. A decision needs to be taken about whether the product justifies considerable expenditure in the hope of increasing its market share, or whether it should be allowed to die quietly as it are squeezed out of the expanding market by rival products. Because, considerable expenditure would be needed to turn a question mark into a star by building up market share, question marks will usually be poor cash generators and show a negative cash flow.

d. **Dogs** are products with a low share of a low growth market. They may be ex-cash cows that have now fallen on hard times. Dogs should be allowed to die or should be killed off.
Although they will show only a modest net cash flow or even a modest cash inflow, they are cash traps which tie up funds and provide a poor return on investment, and not enough to achieve the organization's target rate of return.

e. There are also **infants** (i.e. products in an early stage of development) and **warhorse** (i.e. products that have been cash cows in the past, and still are making acceptable sales and profits even now) and **dodos** (low share, negative growth, and negative cash flow).

(ii) Distinguish between Competitive Advantage and Core Competence:

- A competitive advantage does not necessarily imply a core competence while a core competence does imply a number of competitive advantages.
- A Competitive advantage does not constitute a sure success formula for a firm over a long term; a core competence usually does.
- A core competence provides a lasting superiority to the company while a competitive advantage provides a temporary competitive superiority. And behind any lasting competitive superiority, one can always find a core competence.

While a competitive advantage accrues from a functional strength in any of the manifold functions performed by a firm, a core competence does not normally accrue from functional strength. The strength has to be at the root of business and product; it has to be core strength like a unique capability in technology or process.
A competitive advantage helps a firm in a specific and limited way; a core competence helps it in a general, far-reaching and multifaceted manner. A competitive advantage provides competitive strength to the firm in a given business or

product. A core competence helps the firm to excel in a variety of business and products.

3. Read the case and answer the following questions. [20 marks]

Jet Airways has leased a single jet aircraft that it operates between Delhi and Bangalore. Only economy class seats are available on this plane. An analyst has collected the following information:

Seating capacity per plane	**360 passengers**
Average number of passengers per flight	**200 passengers**
Average one-way fare	**₹ 5,000**
Variable fuel costs	**₹ 1,40,000 per flight**
Food and beverage service costs (no charge to passenger)	**₹ 200 per passenger**
Commission to travel agents paid by Air India (all tickets are booked by travel agents)	**8 % of fare**
Fixed annual lease costs allocated to each flight	**₹ 5,30,000 per flight**
Fixed ground-services (maintenance, check in, baggage handling) costs allocated to each flight	**₹ 70,000 per flight**
Fixed flight-crew salaries allocated to each flight	**₹ 40,000 per flight**

For simplicity, assume that fuel costs are unaffected by the actual number of passengers on a flight.

1. **Calculate the total contribution margin from passenger that Jet Airways earns on each one-way flight between Delhi and Bangalore. [3]**
2. **The Market Research Department of Jet Airways indicates that lowering the average one-way fare to ₹ 4,800 will increase the average number of passenger per flight to 212. On the basis of financial considerations alone, should Jet Airways lower its fare? Show your calculations. [1+3]**
3. **Travel International, a tour operator, approaches Jet Airways on the possibility of chartering its aircraft. The terms of charter are as follows: (a) For each one-way flight, Travel International will pay Jet Airways ₹ 7,45,000 to charter the plane and to use its flight crew and ground-service staff; (b) Travel International will pay for fuel costs; and (c) Travel International will pay for all food costs. On the basis of financial considerations alone, should Jet Airways accept Travel International offer? Show your calculations. What other factors should Jet Airways consider in deciding whether to charter its plane to Travel International? [1+2+3]**
4. **State the areas where Management Accountant can take the decision. [7]**

Answer:

1. The total contribution margin from passenger that Jet Airways earns on each one-way flight between Delhi and Banglore

	₹
Average one-way fare per passenger	5,000
Commission at 8% of ₹ 5,000	400
Net cash to Jet Airways per ticket	4,600
Average number of passengers per flight	× 200
Revenues per flight (₹ 4,600 × 200)	9,20,000
Food and beverage cost per flight (₹ 200 × 200)	40,000
Total contribution margin from passengers per flight	8,80,000

2.

	₹

If fare is	4,800
Commission at 8% of ₹ 4,800	384
Net cash per ticket	4,416
Food and beverage cost per ticket	200
Contribution margin per passenger	4,216
Total contribution margin from passengers per flight (₹ 4,216 × 212)	8,93,792

All other costs are irrelevant.

On the basis of quantitative factors alone, Jet Airways should decrease its fare to ₹ 4,800 because reducing the fare gives Jet Airways a higher contribution margin from passengers (₹ 8,93,792 versus ₹ 8,80,000).

3. In evaluating whether Jet Airways should charter its plane to Travel International, we compare the charter alternative to the solution in requirement 2 because requirement 2 is preferred to requirement 1.

	₹
Under requirement 2, contribution from passengers	8,93,792
Deduct fuel costs	1,40,000
Total contribution per flight	7,53,792

Jet Airways gets ₹ 7,45,000 per flight from chartering the plane to Travel International. On the basis of quantitative financial factors. Jet Airways is better off not chartering the plane and, instead, lowering its own fares. Other qualitative factors that Jet Airways should consider in coming to a decision are:

a. The lower risk from chartering its plane relative to the uncertainties regarding the number of passengers it might get on its scheduled flights.
b. The stability of the relationship between Jet Airways and Travel International. If this is not a long-term arrangement, Jet Airways may lose current market share and not benefit from sustained charter revenues.

4. Some of the areas involving decisions to be taken by Management Accountant are:-

- Stock Management and Inventory Control Decisions,
- Plant Location Decisions;
- Machinery Replacement/ Capital Budgeting Decisions;
- Sale at Split-off or Further Processing Decisions;
- Product Decisions – Dropping or adding a product line,
- Marketing decisions,
- Submitting Tenders and Quotations for new jobs based on relevant cost analysis,
- Acceptance of incremental order in different situations like spare capacity, full capacity etc.
- Make orBuy Decisions,
- Operate or Shut Down Decisions,
- Product Pricing Decision – Reduction or maintenance of price,
- Opening of new sales territory or branch,
- Intra-Company Transfer Pricing Decisions,
- Purchasing vs. Lease Financing Decisions.

4. Answer any two questions from (a), (b) and (c): [2×15=30 marks]

4. (a) (i) Boraco Ltd. has been offered supplies of special ingredients S at a transfer price of ₹15 per kg by chhotaco Ltd. which is part of the same group of companies. Chhotaco Ltd processes and sells S to customers external to the group at ₹15 per kg. Chhotaco

Ltd. bases its transfer price on cost plus 25% profit mark-up. Total cost has been estimated as 75% variable and 25% fixed.

You are required to:

Discuss the Transfer prices at which Chhotaco Ltd. should offer to transfer special ingredient S to Boraco Ltd. in order that group profit maximizing decisions may be taken on financial ground in each of the fallowing situations:-

(i) Chhotaco Ltd. has an external market for all of its production of S at a selling price of ₹15 per kg. Internal transfers to Boraco Ltd. would enable ₹1.50 per kg of variable packing cost to be avoided.

(ii) Conditions are as per (i) but Chhotaco Ltd has production capacity for 3,000 kg of S for which no external market is available.

(iii) Conditions are as per (ii) but Chhotaco Ltd has an alternative use for some of its spare production capacity. This alternative use is equivalent to 2,000 kg of S and would earn a contribution of ₹6,000. [3+1½+1 ½]

Answer:

(i) The proposed Transfer price [tp], ₹15, is 125% of cost. So, cost= ₹12, of which variable cost is 75%= ₹9 and fixed cost is 25%= ₹3. Since Chhotaco [C] can sell all its production of S in external market, the market price, which is marginal cost plus opportunity cost, should normally be the internal tp.

MP=₹15, Variable cost is ₹9; so opportunity cost is ₹6. However, for internal transfer, packing cost of ₹1.50 will not be needed. Hence, while the outside SP will remain at ₹15, internal tp will be=Variable cost 0f ₹7.50+opportunity cost of ₹6= ₹13.50 – which is the same as MP- Selling expenses avoided.

(ii) For the 3,000 kg where no external market is available, the opportunity cost will not apply and transfers should be at the variable cost of ₹7.50. It will not add to the profit of C Ltd but will enable it to avoid under-capacity working. The remaining output should be transferred at ₹13.50 as described above.

(iii) The lost contribution for the 2,000 kg is ₹3 per kg (₹6,000/2,000 kg) giving a tp of ₹10.50 (₹7.50 variable cost + ₹3 opportunity cost). The remaining 1,000 kg for which there is an external market at ₹13.50.

(ii) A manufacturing company currently operating at 80% capacity has received an export order from Middle East, which will utilize 40% of the capacity of the factory. The order has to be either taken in full and executed at 10% below the current domestic prices or rejected totally.

The current sales or cost data are given below:

Items	**₹ in lakhs**
Sales	**16.00**
Direct Material	**5.80**
Direct Labour	**2.40**
Variable Overheads	**0.60**
Fixed Overheads	**5.20**

The following alternatives are available to the management:

(i) Continue with domestic sales and reject the export order.

(ii) Accept the export order and allow the domestic market to starve to the extent of excess of demand.

(iii) Increase capacity so as to accept the export order and maintain the domestic demand by -

(a) Purchasing additional plant and increasing 10% capacity and thereby increasing fixed overheads by ₹65,000, and

(b) Working overtime at one and half time the normal rate to meet balance of the required capacity.

You are required to evaluate each of the above alternatives and suggest the best one. **[2+3+3+1]**

Answer:

Statement showing computation of profit at different alternatives:

Particulars	Alternative I (Present sales 80%)	Alternative II 40% - Foreign 60% - Domestic	Alternative III 40% - Foreign 80% - Domestic
(a) Sales	16.00	19.20 (7.20 +12.00)	23.20 (7.20 + 16.00)
(b)Variable cost:			
Direct material	5.80	7.25	8.70
Direct labour	2.40	3.00	3.60
Variable overheads	0.60	0.75	0.90
Overtime premium	-	-	0.15
Total	8.80	11.00	13.35
(c)Contribution (a-b)	7.20	8.20	9.85
(d) Fixed cost	5.20	5.20	5.85 (5.20 +0.65)
(e) Profit (c-d)	2.00	3.00	4.00

From the above computation, it was found that the profit is more at the Alternative III i.e. accepting the foreign order fully and maintaining the present domestic sales, it is the best alternative to be suggested.

4. (b) (i) Fit straight line by the least square method to the following figures of production of Sugar Factory. Estimate the production for the year 2016.

Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Production(in Lakh tons)	**76**	**87**	**95**	**81**	**91**	**96**	**90**

[7]

Answer:

Analysis of Trend by Least square Method

Year	**x**	**Y (production)**	**xy**	**x^2**
2009	-3	76	-228	9
20010	-2	87	-174	4
2011	-1	95	-95	1
2012	0	81	0	0
2013	1	91	91	1
2014	2	96	192	4
2015	3	90	270	9
Total	$\sum x = 0$	$\sum y = 616$	$\sum xy = 56$	$\sum x^2 = 28$

The two normal equations are as under:

Equation 1	**Equation** 2
$\sum y = na + b\sum x$	$\sum xy = a\sum x + b\sum x^2$
So, 616=7a+ b (0)	56=88 (0)+b (28)
So, 7a= 616	56=28b
a=616÷ 7=88	b=56÷28=2

The first degree polynomial trend equation (straight line trend) is Y=a+ bx
So, Y=88+2x (where original year is 2012, x=1 year unit)

Estimated production for the year 2016: Here, x=4 (i.e. from 2012 to 2016)
So, Y=88+2(4); 88+8=96.

Hence, production for the year 2016= 96 lakh tons.

(ii) List out ten steps of quality improvement which has been conceptualized by Philip Crosby. [5]

Answer:

The following are the ten steps of Quality Improvement, as per Philip Crosby:

- Management is committed to quality and this is clear to all.
- Create quality improvement teams, with representatives from all departments.
- Measure processes to determine current & potential quality issues.
- Calculate the cost of poor quality.
- Raise quality awareness of all employees.
- Take action to correct quality issues.
- Monitor progress of quality improvement-Establish a zero-defect committee.
- Train supervisors in Quality improvement.
- Encourage employees to create their own quality improvement goals.
- Recognize participants' efforts.

(iii) Enumerate the steps involved in target costing? [3]

Answer:

The following are the steps involved in target costing.

- Ascertain from market studies the demand and the price at which the product can be sold.
- Deduct the required profit percentage from the selling price.
- The balance represents the target cost.
- Compare the actual/estimated cost with the target cost.
- If the actual/estimated target cost is greater than the target cost, introduced cost reduction measures to bring down the cost to the level of target cost. If the required reduction in cost is not possible, reject the proposal to produce the product.

4. (c) (i) At 100% capacity (1,00,000 hours), the monthly production overhead budget for a factory was as follows:

	₹	Category
Salaries	**40,000**	**C**
Indirect wages	**8,000**	**B**
Repairs and maintenance	**5,000**	**B**
Consumable stores	**4,000**	**A**
Miscellaneous	**5,000**	**B**
Spoilage	**2,000**	**A**
Fuel and Power	**15,000**	**A**
	79,000	

The behavior of various categories of expenses was as follows:

Activity as a % of capacity	Multiplier A	Applicable B	To Budget
80	0.85	1.00	1.00
90	0.93	1.00	1.00
100	1.00	1.00	1.00
110	1.06	1.00	1.00
120	1.12	1.00	1.00
130	1.18	1.10	1.00
140	1.23	1.10	1.00

150	**1.28**	**1.10**	**1.20**

There were three products and in a month, the total production was expected to be:

X	**10,000 units**
Y	**15,000 units**
Z	**5,000 units**

The standard hours per unit of the three products were agreed to be 5 for X, 4 for Y and 6 for Z. Prepare the Production Overhead Budget for the concerned month. [5]

Answer:

Production in terms of hours for the month

Product	Units produced	Std hrs. per unit	Std. hrs. produced
X	10,000	5	50,000
Y	15,000	4	60,000
Z	5,000	6	30,000
			1,40,000

Level of production = 140%

Production overhead budget for the month

Item	Budget or Standard	Category	Multiplier at 140%	Amount
Salaries	40,000	C	1.00	40,000
Indirect wages	8,000	B	1.10	8,800
Repairs and maintenance	5,000	B	1.10	5,500
Consumable stores	4,000	A	1.23	4,920
Miscellaneous	5,000	B	1.10	5,500
Spoilage	2,000	A	1.23	2,460
Fuel and power	15,000	A	1.23	18,450
	79,000			85,630

(ii) Two similar products A and B, manufactured by a company for a production period have the following data:

Particulars	Product A	Product B
Selling price (₹/unit)	**50**	**70**
Variable cost (₹/unit)	**30**	**40**
Labour hours per unit	**2**	**6**

Total fixed costs that have to be incurred irrespective of the type of product amounts to ₹1,80,000. Besides, there are specific fixed costs of ₹60,000 to be incurred only if A is produced and ₹72,000 to be incurred only if B is produced. Assume no inventory. At present, 7,500 units of A and 7,500 units of B are sold.
Required:
(A) What is the current Break-Even Point (BEP)?
(B) What is the minimum number of units to achieve BEP?
(C) If there are only 10,000 labour hours possible in production period, what would be the optimum product-mix? [6]

Answer:

(A) Current BEP (both A and B produced):
Total Fixed Cost = 60,000 + 72,000 + 1,80,000 = ₹ 3,12,000

Contribution of A = 20, B = 30, Average = 25 (equal no. of units A and B)
BEP = 3,12,000/25 = 12,480 units (i.e., 6,240 units of A and 6,240 units of B)

(B) If only A is produced, BEP (60,000 + 1,80,000)/20 = 12,000 units
If only B is produced BEP (72,000 + 1,80,000)/30 = 8,400 units
Minimum number of units for BEP = 8,400 units of B

(C) Contribution per labour hour A: 20/2 = 10 and for B = 30/6 = 5
With given 10,000 labour hours calculation of optimum product mix is not possible as with 10,000 labour hours one can produce only 10,000/10 = 1,000 units of A & 10,000/5 = 2,000 units of B which are much lower than their respective BEPs.

(A produced 1,000 units and B produced 2,000 units which are blow the BEP)

(iii) Why 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