

**PAPER – 15 - BUSINESS STRATEGY & STRATEGIC
COST MANAGEMENT**

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

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
		Identify	Recognize, establish or select after consideration
	APPLICATION How you are expected to apply your knowledge	Illustrate	Use an example to describe or explain something
		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
	ANALYSIS How you are expected to analyse the detail of what you have learned	Solve	Find an answer to
		Tabulate	Arrange in a table
		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
	SYNTHESIS How you are expected to utilize the information gathered to reach an optimum conclusion by a process of reasoning	Prioritise	Place in order of priority or sequence for action
		Produce	Create or bring into existence
		Discuss	Examine in detail by argument
	EVALUATION How you are expected to use your learning to evaluate, make decisions or recommendations	Interpret	Translate into intelligible or familiar terms
Decide		To solve or conclude	
Advise		Counsel, inform or notify	
	Evaluate	Appraise or assess the value of	
	Recommend	Propose a course of action	

Paper 15 - Business Strategy and Strategic Cost Management

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

In 2006-07 PTC Food division decided to enter the fast growing (20-30% annually) snacks segment, an altogether new to it. It had only one national competitor-Trepsico's Trito. After a year its wafer snack brand Ringo, fetched 20% market share across the country. Ringo's introduction coincided with the cricket world cup. The wafer snacks market is estimated to be around ₹ 250 crores.

The company could take the advantage of its existing-distribution network and also source potatoes from farmers easily. Before the PTC could enter the market a cross-functional team made a customer survey through a marketing research group in 14 cities of the country to know about the snacks eating habits of people. The result showed that the customers within the age-group of 15-24 years were the most promising for the product as they were quite enthusiastic about experimenting new snack taste. The company reported to its chefs and the chefs came out with 16 flavours with varying tastes suiting to the target age-group.

The company decided to target the youngsters as primary target on the assumption that once they are lured in, it was easier to reach the whole family.

Advertising in this category was extremely crowded. Every week two-three local products in new names were launched, sometimes with similar names. To break through this clutter the company decided to bank upon humour appeal.

The Industry sources reveal that PTC spent about ₹ 50 crores on advertisement and used all possible media print and electronic, both including the creation of its own website, Ringoringoyoungo.com with offers of online games, contests etc. Mobile phone tone downloading was also planned which proved very effective among teenagers. The site was advertised on all dotcom networks. Em TV, Shine TV, Bee TV and other important channels were also used for its advertisement along with FM radio channels in about 60 cities with large hoardings at strategic places.

Analysts believes that Ringo's success story owes a lot to PTC's widespread distribution channels and aggressive advertisements. Humour appeal was a big success. The 'Ringo' was made visible by painting the Railway bogies passing across the States. It has also been successful to induce Lovely Brothers' Future Group to replace Trito in their Big-Bazaar and chain of food Bazaars. PTC is paying 4% higher margin than Trepsico to Future group and other retailers.

Ringo to give Trepsico a run for its money. Trito's share has already been reduced considerably. Retail tie-ups, regional flavours, regional humour appeals have helped PTC. But PTC still wants a bigger share in the market and in foreign markets also, if possible.

Answer the following questions:

- a) What is SWOT Analysis?
- b) What is the strength of PTC?
- c) What are the weaknesses of PTC for entering into the branded snacks market?
- d) What kind of marketing strategy was formulated and implemented for Ringo?

(4+6+6+4=20)

Answer

- (a) SWOT analysis is a tool used by organizations for evolving strategic options for the future. The term SWOT refers to the analysis of strength, weaknesses, opportunities and threats facing a company.

Strengths and weaknesses are identified in the internal environment, whereas opportunities and threats are located in the external environment.

Strength: Strength is an inherent capability of the organization which it can use to gain strategic advantage over its competitor.

Weakness: A weakness is an inherent limitation or constraint of the organisation which creates strategic disadvantage to it.

Opportunity: An opportunity is a favourable condition in the external environment which enables it to strengthen its position.

Threat: An unfavourable condition in the external environment which causes a risk for, or damage to the organisation's position.

- (b) The strengths of PTC are:

- PTC has an existing distribution network that is used to its advantage.
- The company has strengths in the area of procurement of potato, raw material to make the wafers.
- Financially the company is very strong as they are spending 50 crores on advertising in a market worth ₹ 250 crores.
- The company has diverse flavours of wafers in its portfolio that are according to the different tastes of the target group.
- PTC has done good bargaining deals with food bazaars and food chains.
- The cross-functional team of PTC made a virtuous marketing research.

- (c) Weaknesses are inherent limiting factors of an organization. They are internal by nature to the working of the organization. The case study does not clearly mention the points that can conclusively be weaknesses of the company. However, a deeper analysis will bring out that the company is totally new to the snacks business and is highly aggressive in its approach.

The experience in the food business may not result in the required competencies in the business of chips. Seemingly, the company has also gone overboard in its advertisement expenditure. It may be that the margins justify expenditure of 20% in value of the total market size of ₹ 250 Crores. Otherwise, the company may come into financial difficulties. Creating market may also be difficult as already there are many players who are trying to get attention of existing and new customers.

The business is already cluttered with regional and national players and is highly competitive. Further, the company is overly relying on young segment of the population. This segment can be highly receptive to the new products and the company may lose them easily to the competitors.

- (d) Formulation and Implementation of marketing strategy was as under:

The Product: To launch its snack product, an easy to remember brand name RINGO was decided upon. To understand the snacking habits of Indian customer a large survey was

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

undertaken. Chefs on the basis of the market survey came out with sixteen flavours. The target group was identified as youngsters of 15 – 24 years.

The Promotion: The company spent about ₹ 50 crore on marketing communication. Different Media including print, electronic and outdoor advertising were put to use. Appeal used was that of humour. A huge visibility through point-of-sale was also arranged. Promotion policy was very aggressive considering that ₹ 50 crores were spent in a market of ₹ 250 crores.

The Place: Getting Trito replaced by Ringo in Big-Bazaar and food Bazaar chain of stores was a great success for PTC. To motivate a higher margin than the Trepsico was provided for. PTC even otherwise has extensive distribution network.

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

2. (a) (i) What are the various steps required in contingency Planning? 7

Answer:

Robert Linnemam and Rajan Chandran have suggested seven steps which is as follows:

Step 1: Identify the beneficial and unfavourable events that could possibly derail the strategy or strategies.

Step 2: Specify trigger points. Calculate about when contingent events are likely to occur.

Step 3: Assess the impact of each contingent event. Estimate the potential benefit or harm of each contingent event.

Step 4: Develop contingency plans. Be sure that contingency plans are compatible with current strategy and are economically feasible.

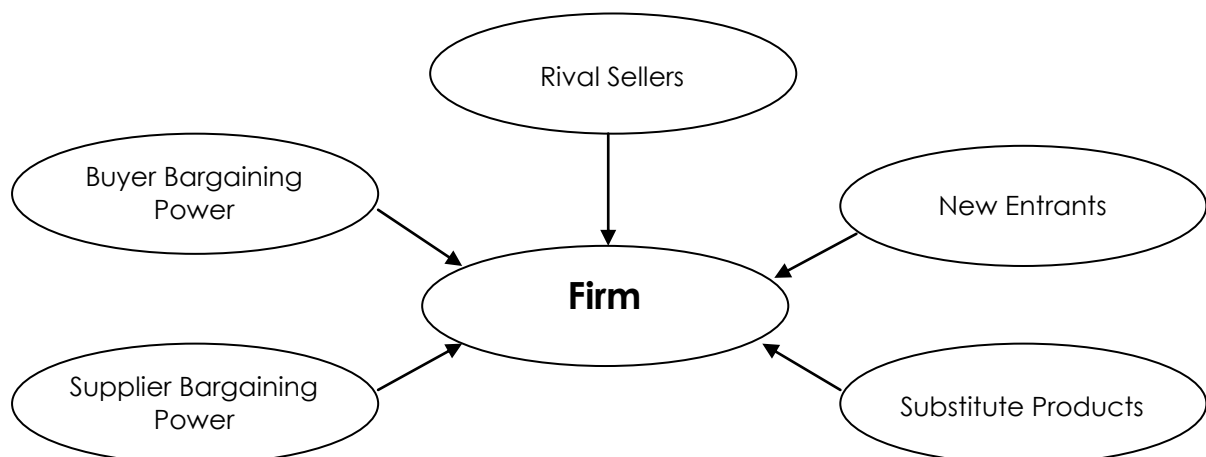
Step 5: Assess the counter impact of each contingency plan. That is, estimate how much each contingency plan will capitalize on or cancel out its associated contingent event. Doing this will quantify the potential value of each contingency plan.

Step 6: Determine early warning signals for key contingency event. Monitor the early warning signals.

Step 7: For contingent event with reliable early warning signals, develop advance action plans to take advantage of the available lead time.

2. (a) (ii) "Industry is a composite of competitive pressure in five area of the overall market". Explain briefly the competitive pressure. 6

Answer:



Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

1. Porter's Five Model Competitive Analysis is a powerful and widely used tool for systematically diagnosing the principal competitive pressures in a market and assessing the strength and importance of each. The five forces together determine industry profitability.
2. Competitive Pressures: This model states that the state of competition in an industry is the result of competitive pressures operating in five areas of the overall market –
 - (a) Competitive pressures associated with the market, maneuvering and jockeying for buyer patronage that goes on among rival sellers in the industry.
 - (b) Competitive pressures associated with the threat of new entrants into the market.
 - (c) Competitive pressures coming from the attempts of Companies in other industries to win buyers over to their own substitute products.
 - (d) Competitive pressures stemming from supplier bargaining power & Supplier-Seller Collaboration.
 - (e) Competitive pressures stemming from buyer bargaining power and Seller-Buyer Collaboration.
3. Steps: The steps to determine competition in a given industry are

Step	Description
1	Identify the specific competitive pressures associated with each of the five forces.
2	Evaluate how strong the pressures comprising each of the five forces are - (a) fierce, (b) strong, (c) moderate to normal, or (d) weak.
3	Determine whether the collective strength of the five competitive forces is conducive to earning attractive profits.

2. (a) (iii) Distinguish between objectives and goals.

2

Answer:

The points of difference between the two are as follows:

- The goals are broad while objectives are specific.
- The goals are set for a relatively longer period of time.
- Goals are more influenced by external environment.
- Goals are not quantified while objectives are quantified.

Broadly, it is more convenient to use one term rather than both. The difference between the two is simply a matter of degree and it may vary widely.

2. (b) (i) Briefly Explain the effects of politics on organisation and employees.

7

Answer:

Effects of politics on organization and employees:

1. Decrease in overall productivity

Politics lowers the output of an individual and eventually affects the productivity of the organization. Common observation says that individuals who play politics at the workplace pay less attention to their work. They are more interested in leg pulling and back biting. They spend most of their times criticizing their fellow workers.

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

2. Affects Concentration

Individuals find it difficult to concentrate on their work. They are more interested in spoiling the other person's image in front of the superiors. An individual involved in politics is bound to make more mistakes as his focus is somewhere else.

3. Spoils the Ambience

Politics leads to a negative environment at the workplace. It spoils the relationships amongst individuals. An individual playing politics at the organization is disliked by all.

4. Changes the Attitude of employees

Politics changes the attitude of the employees even the serious employees lose interest in work and attend office just for the sake of it.

5. Demotivated employees

A non performer can be the apple of his boss's eye simply due to politics, thus demotivating the performers. Discussions are essential at the workplace to extract the best out of employees. Evaluating the pros and cons of an idea always helps in the long run. Employees playing politics always look for an opportunity to tarnish the image of the fellow workers. Employees feel demotivated when they are not rewarded suitably or someone who has not worked hard gets the benefits due to mere politics.

6. Increases Stress

Politics increases the stress level of the employees. Individuals are not machines who can work continuously for 8-9 hours without talking to others. It is important to have friends at the workplace who help you when needed.

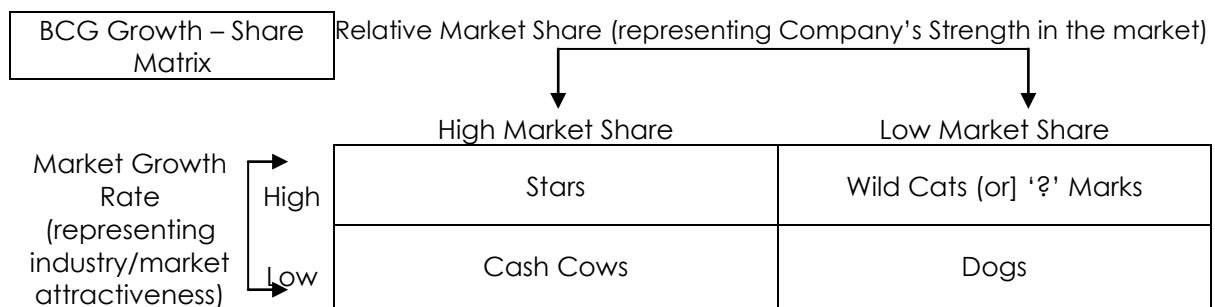
7. Wrong Information

Employees indulged in politics manipulate information and it is never passed on in its desired form. Superiors get a wrong picture of what is actually happening in the organization.

2. (b) (ii) 'B' in BCG Matrix stands for Balance. Comment.

8

Answer:



BCG – Concept

Stage 1	Evaluation of relationships between Growth - Share.
Stage 2	Classification of SBUs into - (a) Stars, (b) Cash Cows, (c) Question Marks, and (d) Dogs.
Stage 3	Determination of Strategy - (a) Build, (b) Hold, (c) Harvest, and (d) Divest.

1. Stage 1: Under the BCG approach, a Company classifies its different businesses on a two-dimensional Growth-Share Matrix. In the matrix -
 - Vertical Axis represents Market Growth Rate, and provides a measure of Market Attractiveness.
 - Horizontal Axis represents Relative Market Share and serves as a measure of

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

Company Strength in the market.

2. Stage 2: Using the BCG Matrix, Firms can identify four different types of products or SBUs, referred as –

Item	Features
(a) Stars - Products or SBUs that grow rapidly.	They need heavy investment to maintain their position and finance their rapid growth potential. They represent best opportunities for expansion.
(b) Cash Cows – Low - growth, high market share SBUs or products.	They generate cash and have low costs. They are established, successful, and need less investment to maintain their market share. In the long run, when the growth rate slows down, Stars become Cash Cows.
(c) Question Marks or Problem Children or Wild Cats.	Low market-share business in high-growth markets. They need heavy investments but have low potential to generate cash. Question Marks if left unattended are capable of becoming cash traps. As growth rate is high, increasing the investments should be relatively easier. Firms have to initiate action to convert "Question Marks" into "Stars", and then to "Cash Cows", when the growth rate reduces.
(d) Dogs - Low- growth, low-share SBUs & products.	They may generate enough cash to maintain themselves, but do not have much future. Sometimes they may need cash to survive. Dogs should be minimised by means of divestment or liquidation.

3. Stage 3: After classifying the SBUs as above, the role of each SBU is determined on the basis of the following strategies. The four strategies that help to determine the role of SBUs are -
- (a) Build: To increase market share, by foregoing short-term earnings in favour of building a strong future with large market share.
 - (b) Hold: To preserve market share.
 - (c) Harvest: To increase short-term cash flow, regardless of long-term effect.
 - (d) Divest: To sell or liquidate the business because resources can be better used elsewhere.

2. (c) (i) What are the procedures followed for evaluating the decision for mergers and acquisitions? 4

Answer:

The three important steps involved in the analysis of mergers and acquisitions are:-

- **Planning:** of acquisition will require the analysis of industry-specific and firm-specific information. The acquiring firm should review its objective of acquisition in the context of its strengths and weaknesses and corporate goals. It will need industry data on market growth, nature of competition, ease of entry, capital and labour intensity, degree of regulation, etc. This will help in indicating the product-market strategies that are appropriate for the company. It will also help the firm in identifying the business units that should be dropped or added. On the other hand, the target firm will need information about quality of management, market share and size, capital structure, profitability, production and marketing capabilities, etc.
- **Search and Screening:** Search focuses on how and where to look for suitable candidates for acquisition. Screening process short-lists a few candidates from many available and obtains detailed information about each of them.

- **Financial Evaluation:** of a merger is needed to determine the earnings and cash flows, areas of risk, the maximum price payable to the target company and the best way to finance the merger. In a competitive market situation, the current market value is the correct and fair value of the share of the target firm. The target firm will not accept any offer below the current market value of its share. The target firm may, in fact, expect the offer price to be more than the current market value of its share since it may expect that merger benefits will accrue to the acquiring firm.

A merger is said to be at a premium when the offer price is higher than the target firm's premerger market value. The acquiring firm may have to pay premium as an incentive to target firm's shareholders to induce them to sell their shares so that it (acquiring firm) is able to obtain the control of the target firm.

2. (c) (ii) Discuss different types of Strategy alliance.

7

Answer:

There are four types of strategic alliances: joint venture, equity strategic alliance, non-equity strategic alliance, and global strategic alliances.

- (i) Joint venture is a strategic alliance in which two or more firms create a legally independent company to share some of their resources and capabilities to develop a competitive advantage. When two companies invest funds into creating a third, jointly owned company, that new subsidiary is called a joint venture. Because the joint venture can access assets, knowledge and funds from both of its partners it can combine the best features of those companies without altering the parent companies. The new company is an ongoing entity that will be in business for itself, but profits are owned by the parents. Some popular forms of joint ventures in India are:

Licensing:

A foreign company authorizes an Indian company to use its strong brand name, to produce a certain product. The overseas company charges a license fee, for sharing its brand name, patents or copyrights.

Franchising:

In this type of a joint venture, a foreign company (franchisor) lends its well-known brand name, goodwill, technical know-how and expertise, to an Indian company (franchisee), to conduct its business. In turn, the franchisor receives a specific amount of turnover from the franchisee. This type of a joint ventures involve low risk, less investment and ensure fast entry in Indian markets for the franchisor.

- (ii) Equity strategic alliance is an alliance where partner companies own unequal shares of equity in the venture and are considered to be superior at passing on know-how between companies because they are closer to hierarchical control than non equity alliances. For example, Ford Motor Company and Mazda Motor Corporation formed a long-standing equity strategic alliance.
- (iii) Non-equity strategic alliance is an alliance in which two or more firms develop a contractual-relationship to share some of their unique resources and capabilities to create a competitive advantage.
- (iv) Global Strategic Alliances working partnerships between companies (often more than two) across national boundaries and increasingly across industries, sometimes formed between company and a foreign government, or among companies and governments.

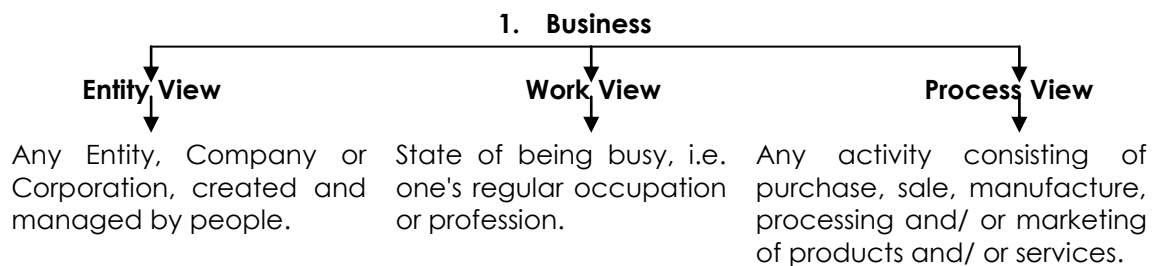
Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

A global strategic alliance is usually established when a company wishes to edge into a related business or new geographic market — particularly one where the government prohibits imports in order to protect domestic industry. Typically, alliances are formed between two or more corporations, each based in their home country, for a specified period of time. Their purpose is to share in ownership of a newly formed venture and maximize competitive advantages in their combined territories.

Other types of Strategic Alliance are outsourcing, affiliated marketing, technology licensing and product licensing.

2. (c) (iii) “Profit may not be a universal objective, but business efficiency is definitely an objective common to all business” Comment. 4

Answer:



Objectives: The important objectives of a business are -

(i) Survival: Survival is a basic objective of every business. It represents the will and anxiety to remain in business as long as possible, i.e. as a going concern.

(ii) Stability: A stable and steady enterprise ensures - smooth work flow, better efficiency, and management by exception.

(iii) Growth: This objective is equated with dynamism, vigour, promise and success. Growth may be measured by way of increase in assets, manufacturing facilities, sales volume, new products, higher profits and market share, increase in manpower employment, acquisition of other enterprises, etc.

(iv) Profitability: Profit is the overall measure of performance. This is the main objective of business. Profit Maximization has a long-term perspective, and includes development of wealth, increased goodwill, and benefits to all Shareholders.

(v) Others: Other objectives of a business are technological dynamism, self-reliance, competitive strength, customer service & product quality, employee satisfaction and welfare, contribution to societal welfare, compliance with laws and Government regulations, etc.

3. Read the case and answer the following questions

Polaris, a company engaged in Decision Support System (DSS) is examining the profitability and pricing policies of three of its recent engineering software packages:

- **EE-46: package for electrical engineers**
- **ME-83: package for mechanical engineers**
- **IE-17: package for industrial engineers**

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

Summary details on each package over their two-year "infancy-to-grave" product lives are as follows:

Package	Selling Price	Number of Units Sold	
		Year 1	Year 2
EE-46	₹ 2,500	2,000	8,000
ME-83	3,000	2,000	3,000
IE-17	2,000	5,000	3,000

Assume that no inventory remains on hand at the end of Year 2.

Polaris is deciding which product lines to emphasize. In the past two years, profitability has been mediocre. Polaris is particularly concerned with the increase in R&D costs. An analyst pointed out that for one of its most recent packages (IE-17), major efforts had been made to reduce R&D costs.

Praveen, the engineering software manager, decides to collect the following life-cycle revenue and cost information for the EE-46, ME-83, and IE-17 packages:

	EE-46		ME-83		IE-17	
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
Revenues (₹ 000s)	₹ 5,000	₹ 20,000	₹ 6,000	₹ 9,000	₹ 10,000	₹ 6,000
Costs (₹ 000s)						
R&D	7,000	0	4,500	0	2,400	0
Design of product	1,850	150	1,100	100	800	160
Manufacturing	750	2,250	1,050	1,050	1,430	650
Marketing	1,400	3,600	1,200	1,500	2,400	2,080
Distribution	150	600	240	360	600	360
Customer service	500	3,250	450	1,050	2,200	3,880

Required:

- (i) How does a product life-cycle income statement differ from a conventional income statement? What are the benefits of using a product life-cycle reporting format? [2+3]
- (ii) Present a product life-cycle income statement for each software package. Which package is the most profitable and which is the least profitable? Ignore the time value of money. [3+1+1]
- (iii) How do the three software packages differ in their cost structure (the percentage of total costs in each cost category)? [6]
- (iv) State what do you mean by the term 'Life Cycle Costing' (LCC)? Write a few lines regarding LCC. [4]

Answer:

(i) A life-cycle income statement traces revenue and costs of each individual software package from its initial research and development to its final customer servicing and support. The two main differences from a conventional income statement are:

- a. Costs incurred in different calendar periods are included in the same statement.
- b. Costs and revenue of each package are reported separately rather than aggregated into companywide categories.

The benefits of using a product life-cycle report are:

- a. The full set of revenues and costs associated with each product becomes visible.

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

- b. Differences among products in the percentage of total costs committed at early stages in the life cycle are highlighted.
- c. Interrelationships among business function cost categories are highlighted.

(ii)

	EE-46		ME-83		IE-17	
Revenue (₹ 000s)		₹25,000		₹15,000		₹ 16,000
Costs (₹ 000s)						
Research & development	₹ 7,000		₹ 4,500		₹ 2,400	
Design	2,000		1,200		960	
Production	3,000		2,100		2,080	
Marketing	5,000		2,700		4,480	
Distribution	750		600		960	
Customer service	3,750		1,500		6,080	
		21,500		12,600		16,960
Operating income (₹ 0,000s)		₹ 3,500		₹ 2,400		₹ (960)

Rankings of the three packages on profitability (and relative profitability) are:

Operating income $\frac{\text{Operating income}}{\text{Revenue}}$

Operating income

- | | |
|-------------------------|-------------------|
| 1. EE-46 : ₹ 35,00,000 | 1. ME-83:14.0% |
| 2. ME-83 : ₹ 24,00,000 | 2. EE-46 :16.0% |
| 3. IE-17 : ₹ (9,60,000) | 3. IE-17 : (6.0%) |

The EE-46 and ME-83 packages should be emphasized, and the IE-17 package should be de-emphasized. It is interesting that IE-17 had the lowest R&D costs but was the least profitable. Polaris should evaluate whether reducing R&D costs contributed in any way to IE-17's poor performance.

(iii) The cost structures of the three software packages are:

	EE-46	ME-83	IE-17
Research & Development	32.5%	35.7%	14.1%
Design	9.3	9.5	5.7
Production	14.0	16.7	12.3
Marketing	23.3	21.4	26.4
Distribution	3.5	4.8	5.7
Customer service	17.4	11.9	35.8
	100.0%	100.0%	100.0%

The major differences are:

- a. EE-46 and ME-83 have over 30% of their costs in the R&D/product design categories, compared to less than 15% (14.1%) for IE-17.
- b. IE-17 has 35.8% of its costs in the customer-service category, compared to 17.4% for EE-46 and 11.9% for ME-83.

There are several explanations for these differences:

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

- a. EE-46 and ME-83 differ sizably from IE-17 in their R&D/product design intensity. For example, EE-46 and ME-83 may require considerably (a) more interaction with users, and (b) more experimentation with software algorithms than does IE-17.
- b. The software division should have invested more in the R&D/product design categories for IE-17.

(iv) Life Cycle Costing (LCC): Life Cycle Costing also called 'Whole Life Costing', is a technique to establish the total cost of ownership. It is a structured approach that addresses all the elements of this cost and can be used to produce a spend profile of the product or service over its anticipated life-span. The results of an LCC analysis can be used to assist management in the decision-making process, where there is a choice of options.

There are 4 major benefits of LCC analysis:

- Evaluation of competing options in purchasing
- Improved awareness of total costs
- More accurate forecasting of cost profiles and
- Performance trade-off against cost.

The principles of LCC can be applied to both complex and simple projects, though a more developed approach would be taken for say a large project than a straightforward equipment purchase.

LCC involves identifying the individual costs relating to the procurement of the product or service. These can be either "one-off or "recurring" costs. LCC is based on the premise that to arrive at some meaningful purchasing decisions, full account must be taken of each available option. All significant expenditure of resources which is likely to arise as a result of any decision must be addressed. Explicit consideration must be given to all relevant costs for each of the options from initial consideration through to disposal.

The degree of sophistication of LCC will vary according to the complexity of the goods or services to be procured. The cost of collecting necessary data can be considerable and where the same items are procured frequently, a cost database can be developed. The following fundamental concepts are common to all applications of LCC:

- Cost -break down structure
- Cost-estimating
- Discounting and
- Inflation

4. Answer any two questions from (a), (b) and (c):

[2 x 15 =30]

4(a) (i) ABC Limited uses a small casting in one of its finished products. The castings are purchased from a foundry. ABC Limited purchases 54,000 casting per year at a cost of ₹800 per casting.

The castings are used evenly throughout the year in production process on a 360 day per year basis. The company estimates that it costs ₹9,000 to place a single purchase order and about ₹300 to carry one casting in inventory for a year. The carrying costs result from the need to keep the castings in carefully controlled temperature and humidity conditions, and from the high cost of insurance.

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

Delivery from the foundry generally takes 6 days, but it can take as much as 10 days. The days of delivery time and percentage of their occurrence are shown in the following table-

Delivery Time (days)	6	7	8	9	10
Percentage of occurrence	75	10	5	5	5

- I. Compute the Economic Order Quantity. [1 ½]
- II. Assume that the company is willing to take a 15% risk of being out of a stock. What would be the safety stock and the Re-Order point? [3]
- III. Assume that the company is willing to take a 5% risk of being out of stock. What would be the safety stock and Re-Order point? [3]
- IV. Refer to the original data. Assume that using process re-engineering the company reduces its cost of placing a purchase of order to only ₹600. In addition, the company estimates that when the waste and in efficiency caused by inventories are considered, the true cost of carrying a unit in stock is ₹720 per year. (a) Compute new EOQ and (b) How frequently would the company be placing an order, as compared to the old purchasing policy? [1 ½ +2]

Answer:

- I. $EOQ = \sqrt{2AB \div C}$, Where,
 A=Annual Requirement of materials= 54,000 castings
 B= Buying cost per order= ₹9,000 per order
 C=Carrying cost p.u. p.a.= ₹300 per unit per annum.
 On substitution, EOQ=1,800 castings

II.

Average Consumption per day	=54,000 castings÷360 days	=150 castings
Average lead time	=(10+6)÷2	=8 days
For 15% stock-out risk , relevant delivery time (Cumulative percentage of occurrence up to 7 days is 75 +10 = 85%. Hence, risk of stock-out is 15%)		=7 days
Hence Safety stock	=7days consumption=7x150	=1,050 Castings

Re-order point	=safety stock+ Lead time consumption	=1,050+(150x8)	2,250 Castings
-----------------------	--------------------------------------	----------------	-----------------------

III.

For 5% stock-out risk, relevant delivery time	= 9 days
(Cumulative % of occurrence up to 9 days is 75+10+5+5=95%. Hence, risk of stock-out is 5%)	
Hence, Safety Stock	= 9 days consumption = 9 x 150
	=1,350 castings

Re-order point	=Safety Stock+ Lead time consumption	=1,350+(150x8)	=2,550 castings
-----------------------	--------------------------------------	----------------	------------------------

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

- IV. $EOQ = \sqrt{2AB \div C}$, Where,
 A=Annual Requirement of Raw Materials= 54,000 castings.
 B=Buying Cost per order = ₹600 per order.
 C=Carrying Cost p.u. p.a.= ₹720 per unit per annum.

On substitution, **EOQ=300 castings.**

Number of orders p.a.	= $54,000 \div 1,800$ = 30 orders(old)	And	= $54,000 \div 300$ = 180 orders(new)
-----------------------	---	-----	--

The Company should be placing an order every alternative day ($360 \div 180$) i.e. once in two days under the new system, whereas it was making an order once in 12 days earlier. ($360 \div 30$)

4(a) (ii) Quality Cost but poor Quality cost more. Discuss

[4]

Answer:

"Quality Cost but poor quality costs more" - This statement is given by the famous Japanese guru, Joseph M. Juran. Quality costs matter because they are normally large but they are not normally measured by traditional methods and the result is that they are not known and therefore uncontrolled with a proper and complete evaluation of the quality cost from the stage of design and development to production and services. The Cost and Management Accountant would help in creating a better awareness throughout the organization of the profound impact of poor quality and its repercussion on profitability.

Quality Cost can be analyzed under two major categories:

(i) Cost of Quality Assurance, incurred by the manufacturer (internal quality cost): Internal quality cost consists of

- Preventive Cost: Quality Engineering, Quality Planning.
- Appraisal Cost: Cost of appraising product for conformance to requirements.
- Failure Cost: Cost incurred by failure - Scrap, excess material, testing and assembling.

(ii) Cost of Quality Assurance, at the user's end, which are called as "User Quality Cost".

User Quality Cost: consists of: Cost of repair, Cost of maintaining extra capacity, Cost of effective loss, Cost of damage caused by a failed item.

4. (b)(i) An automobile production line turns out about 100 cars a day, but deviations occur owing to many causes. The production is more accurately described by the probability distribution given below:

Production per day	Probability	Production per day	Probability
95	0.03	101	0.15
96	0.05	102	0.10
97	0.07	103	0.07
98	0.10	104	0.05
99	0.15	105	0.03
100	0.20	Total	1.00

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

Finished cars are transported across the day, at the end of the each day; by ferry has space for only 101 cars.

Required:

- (i) What will be the average number of cars waiting to be shipped?
- (ii) What will be the average area of empty space on the boat?

The fifteen random numbers are given: 20, 63, 46, 16, 45, 41, 44, 66, 87, 26, 78, 40, 29, 92, & 21
[8]

Answer

Simulation of data of the Automobile Production Line:

Production/day	Probability	Cumulative	Random No. Range
95	0.03	0.03	0 - 2
96	0.05	0.08	3 - 7
97	0.07	0.15	8 - 14
98	0.10	0.25	15 - 24
99	0.15	0.40	25 - 39
100	0.20	0.60	40 - 59
101	0.15	0.75	60 - 74
102	0.10	0.85	75 - 84
103	0.07	0.92	85 - 91
104	0.05	0.97	92 - 96
105	0.03	1.00	97 - 99
Total	1.00		

Day	Random No.	Production	No. of cars waiting to be shipped	No. of empty space on the boat
1	20	98	-	3
2	63	101	-	-
3	46	100	-	1
4	16	98	-	3
5	45	100	-	1
6	41	100	-	1
7	44	100	-	1
8	66	101	-	-
9	87	103	2	-
10	26	99	-	2
11	78	102	1	-
12	40	100	-	1
13	29	99	-	2
14	92	104	3	-
15	21	98	-	3
Total			6	18

- (i) Average No. of cars waiting to be shipped: $6 \div 15 = 0.40$
- (ii) Average No. of empty space on the boat: $18 \div 15 = 1.2$

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

4. (b)(ii) Heavens Ltd. has three divisions: Sun, Moon and Star. It also deals with two other outside companies: Mercury and Neptune.

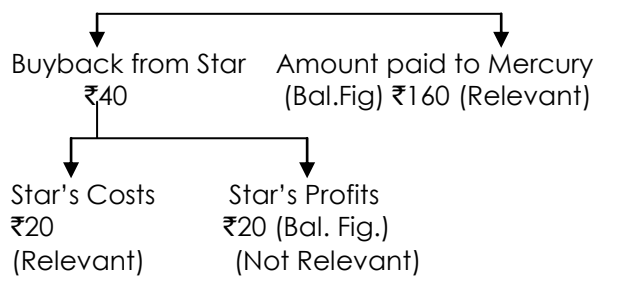
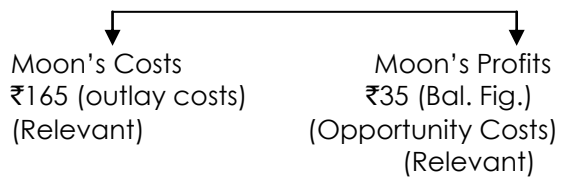
Sun can buy a component from Moon or from Mercury, which will meet Moon's market price of ₹200 per unit. If Sun buys from Mercury, Mercury in turn will buy a component from Star for ₹40 per unit. The outlay costs to Star of supply this component are ₹20 per unit. In filling Sun's order, Moon would incur outlay costs of ₹165 per unit.

Assume that Moon is working at full capacity and can provide the component to Neptune at the same market price of ₹200 per unit and with the same outlay costs of ₹165 per unit.

- I. What alternative would be best for Heavens as a whole — Sun buying from Mercury or Moon? Show supporting calculations. [4]
- II. What Transfer Price should be used to guide the managers of Sun and Moon so as to maximize overall Company net inflow (cash inflow)? [1]
- III. Suppose that Moon has sufficient extra capacity to supply the component to both Sun and Neptune at the same time. How would this change your answers in parts (a) and (b) above? Show supporting calculations. [2]

Answer:

I. Evaluation of Alternatives — Purchase from Mercury (External) or from Moon (Internal)

Mercury's Price = ₹200	Moon's Price = ₹200
<div style="text-align: center;">  </div>	<div style="text-align: center;">  </div>
<p>Star's Costs: Out of Pocket Costs = ₹20 Star's Profits: Does not operate at capacity = Nil Paid to Mercury: extra outflow from Co. = ₹160 Total Relevant Costs = ₹180</p>	<p>Moon's Costs: Out of Pocket Costs = ₹165 Moon's Profit : operates at Capacity = ₹35 (Hence, Opportunity Costs) Total Relevant Costs = ₹200</p>

Decision: Sun should purchase from Mercury (external) since relevant cost to Heavens Ltd. is less.

II. Transfer Prices:

- (a) Minimum Transfer Price from Moon's viewpoint = Variable Costs + Opportunity Costs = ₹165 + ₹35 = ₹200.
- (b) Maximum Transfer Price from Sun's viewpoint = Market Price = ₹200
- (c) Hence, the Transfer Price used to guide the managers and maximise Company's profit will be ₹200.

III. Effect of Moon's spare capacity:

When Moon has sufficient spare capacity, the purchase decision will be re-analysed as under —

- Relevant Cost of Mercury offer = ₹180 (as computed above)

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

- Relevant Cost of Internal Transfer from Moon = Variable Costs only = ₹165.

Decision: Since Cost of Make (internal transfer) is cheaper than Cost of Buy (from Mercury), Heavens Ltd. should opt for internal transfer.

Transfer prices will be —

- Minimum Transfer Price from Moon's viewpoint = Variable Costs only = ₹165
- Maximum Transfer Price from Sun's viewpoint = Market Price = ₹200.

Hence, the Transfer Price used to guide the managers and maximise Company's profits should be in the range ₹165 to ₹200. This will result in the correct decision (internal transfer) since Sun will now opt for internal transfer at a price lower than the maximum price of ₹200.

4. (c) (i) A Methods Engineer wants to assign four new methods to three work centres. The assignment of the new methods will increase production, details of which are given below. Determine the optimal assignment, if only one method can be assigned to each work centre.

Methods	Increase in production (units) in work centres		
	A	B	C
1	10	7	8
2	8	9	7
3	7	12	6
4	10	10	8

[8]

Answer:

The objective is maximisation and the data is unbalanced. Hence, the given matrix is first converted into an opportunity loss matrix by subtracting from the highest element i.e. 12 and a dummy column is inserted.

I. Opportunity Loss Matrix			
2	5	4	
4	3	5	
5	0	6	
2	2	4	

II. Inserting Dummy Column			
2	5	4	0
4	3	5	0
5	0	6	0
2	2	4	0

III. Row and Column Operations			
-0	5	0	0
2	3	1	0
-3	0	2	0
-0	2	0	0

Note: Row Operations will result in the same matrix, since there is one zero in each row. Hence Column Operation Matrix is stated above. Number of lines = Order of Matrix = 4. So, Optimal Assignment is possible.

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

Optimal Assignment			
0	5	0	0
2	3	1	0
3	0	2	0
0	2	0	0

Alternative Solution			
0	5	0	0
2	3	1	0
3	0	2	0
0	2	0	0

Since there is a tie up to the last stage in Rows 1 and 4, and also Columns 1 and 3, multiple optimal solutions exist. Hence, arbitrary allocation is made in the last stage. The two alternative assignments are given above.

Method	Alternative 1	
1	Worker A	10 units
2	Dummy	
3	Worker B	12 units
4	Worker C	8 units
Total		30 units

Method	Alternative 2	
1	Worker C	8 units
2	Dummy	
3	Worker B	12 units
4	Worker C	10 units
Total		30 nits

4. (c) (ii) A Company prepared the following budget for a year —

Item	Materials	Labour	Variable factory OH	Fixed Factory OH	Variable Selling OH	Fixed Selling OH	Profit	Sales Price
Percent	40%	20%	10%	10%	5%	12%	3%	100%

After evaluating the half-yearly performance, it was observed that the Company would be able to achieve only 80% of the original budgeted sales. The revised budgeted sales as envisaged above was estimated at ₹1,080 Lakhs after taking into account a reduction in the

Answer to MTP_Final_Syllabus 2012_Dec 2015_Set 2

selling price by 10%. Prepare a statement showing the break-up of the original and revised budget for the year. [4]

Answer:

A. Interpretation of percentages given:

Revised Budgeted Sales after considering 10% price reduction = ₹1,080 Lakhs
So, Revised Budgeted Sales before considering price reduction = ₹1,080 ÷ 90% = ₹1,200 Lakhs
Since the Company would be able to achieve only 80% of the original budgeted sales,
Original Budgeted Sales = ₹1,200 Lakhs ÷ 80% = ₹1,500 Lakhs.

B. Statement showing the break-up of the original and revised budget for a year (₹ Lakhs)

Particulars	Original Budget	Revised Budget
Sales Revenue (a)	1,500	1,080
Variable Costs:		
Direct Materials	600	40% of ₹1,200 = 480
Direct Labour	300	20% of ₹1,200 = 240
Factory Overheads	150	10% of ₹1,200 = 120
Selling & Administration Overheads	75	5% of ₹1,200 = 60
Total Variable Costs (b)	1,125	900
Contribution (c) = (a) – (b)	375	180
Fixed Overheads:		
Factory Overheads	150	150
Selling & Administration Overheads	180	180
Total Fixed Overheads (d)	330	330
Profit / Loss (c) – (d)	45	(150)

Note: Sale Prices only have been reduced. Hence costs would be computed in relation to the original sale price.

4. (c) (iii) List any three common errors committed in drawing network diagrams. [3]

Answer:

Looping: Generally, the arrow points from left to right, since time flows in that direction. If this convention is not followed, the result is illogical looping.

Dangling: This represents a situation when an event is not continued further, i.e. it hangs abruptly in the middle of the network without being connected to completion stage. Such activities undertaken with no results should be avoided. This can be overcome by following these rules —

- (a) All events, except the first and the last, must have at least one activity entering and one activity leaving them.
- (b) All activities must start and finish with an event.

Duplication: Activities that have the same head event and the same tail event are called duplicate activities. Duplication can be corrected by the introduction of a dummy activity.