

Paper 15 - Business Strategy and Strategic Cost Management

Answer to PTP_Final_Syllabus 2012_Dec2015_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 [20 marks]

Tangy spices Ltd, the countries' biggest spices marketer has decided to launch a hostile bid for Italy's major spice marketer Chilliano. This is a rare case of an Indian company making an unsolicited hostile bid for a foreign company. The Tangy Spices Ltd. has competencies in Indian spices. The major destination markets for the Tangy spices Ltd. exports have been the Europe and America. The competencies of Chilliano lie in Italian herbs and spices. The Indian company with the takeover wishes to synergies its operations in the world market. It also wants to take advantage of the reach enjoyed by the Italian company in several countries where its products are not beng sold presently.

The move of hostile takeover follows Chilliano's rejection to an agreement entered a year back. At that time Chilliano was suffering losses and it offered majority shares at a price of ₹ 2.25. A total of 20% shares were transferred at that time. In one year Chilliano was able to turnaround its operations and the company made handsome profits in the last quarter. The promoters who have residual holding of 35% in the company are reluctant to transfer the shares now. They have rejected the agreement with a plea that the earlier offer price was not sufficient.

Tangy spices Ltd has revised its offer to ₹ 2.95. By this lucrative offer some of the large shareholders of Chilliano reveal their interest for selling their stakes. On the other hand, promoters maintained their position on this matter. Through the process of buying of shares in the market the Tangy spices Ltd. gradually consolidated its holding in Chilliano to 45%. Being a major shareholder they were ready for a takeover. At the same time, Tangy spices Ltd. was trying hard to improve their position so that they do not leave any space for Chilliano's promoters in future.

- (a) What strategic alternative is followed by Tangy spices Ltd? [4]
- (b) Is the hostile takeover by an Indian company appropriate? [6]
- (c) Why the Tangy Spices Ltd. is interested in this takeover? [5]
- (d) Why the promoters are reluctant to transfer the shares after the agreement? [5]

Answer:

(a) There are different general strategic alternatives which are also known as Grand Strategies.

- ❖ Stability
- ❖ Expansion
- ❖ Retrenchment
- ❖ Combination

Expansion is the most popular strategy followed by organization. In expansion strategy, organizations can expand their operations through acquisition route.

Here Tangy Spicy Limited is following up the expansion strategy by acquiring the Chilliano of Italy.

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- (b) Hostile takeovers are extremely expensive. Acquirer need to be ready to pay extra price than market price of equity. It should be done when a cash rich company sees strategic advantage in that acquisition. Indian companies can do the hostile takeover provided that takeover help them to position much stronger in the market. Additionally, price paid for takeover should be in line with the strengths or values to be achieved from that takeover.

For example, Corus acquisition by TATA STEEL is an example of hostile takeover but takeover positioned the TATA as market leader in steel manufacturing capacity and technologies. So looking at this takeover, it seems if hostile takeover is done with proper long-term strategy than it is quite appropriate for the Indian companies.

- (c) The Tangy Spices Ltd. has competencies in Indian spices. The major destination markets for the Tangy spices Ltd. exports have been the Europe and America. The competencies of Chilliano lie in Italian herbs and spices. Tangy with this takeover will synergies its operations in the world market, particularly in Europe and America—its major exports markets. It also wants to take advantage of the reach enjoyed by the Italian company in several countries where its products are not being sold presently.

Further, rejection of promoters to transfer the shares as agreed in an agreement entered a year back also prompted the Tangy to go for his takeover.

- (d) Around a year back, the promoters of Chilliano had agreed to transfer the equity share to Tangy at ₹ 2.25 per share. But in one year, Chilliano was able to turn around its operations and the company made handsome profits in the last quarter. The promoters who have residual holding of 35% in the company become reluctant to transfer the shares now. They have rejected the agreement with a plea that the earlier offer price of ₹ 2.25 per share was not sufficient. So, it is a case where promoters either feel that they are not getting right value for their equity or they do not intend sell equity due to increased profitability of company in the recent past.

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

2. (a) (i) Describe the process of Strategy evaluation. [4]

(ii) Explain the natures and features of strategic planning [6]

(iii) Distinguish between PEST and SWOT. [5]

Answer:

(i) The process of Strategy Evaluation consists of following steps-

- **Fixing benchmark of performance** - While fixing the benchmark, strategists encounter questions such as - what benchmarks to set, how to set them and how to express them. In order to determine the benchmark performance to be set, it is essential to discover the special requirements for performing the main task. The performance indicator that best identify and express the special requirements might then be determined to be used for evaluation. The organization can use both quantitative and qualitative criteria for comprehensive assessment of performance. Quantitative criteria include determination of net profit, ROI, earning per share, cost of production, rate of employee turnover etc. Among the Qualitative factors are subjective evaluation of factors such as - skills and competencies, risk taking potential, flexibility etc.
- **Measurement of performance** - The standard performance is a bench mark with which the actual performance is to be compared. The reporting and communication system help in measuring the performance. If appropriate means are available for measuring the performance and if the standards are set in the right manner, strategy evaluation becomes easier. But various factors such as managers contribution are difficult to measure. Similarly divisional performance is sometimes difficult to measure as compared to individual performance. Thus, variable objectives must be created

against which measurement of performance can be done. The measurement must be done at right time else evaluation will not meet its purpose. For measuring the performance, financial statements like - balance sheet, profit and loss account must be prepared on annual basis.

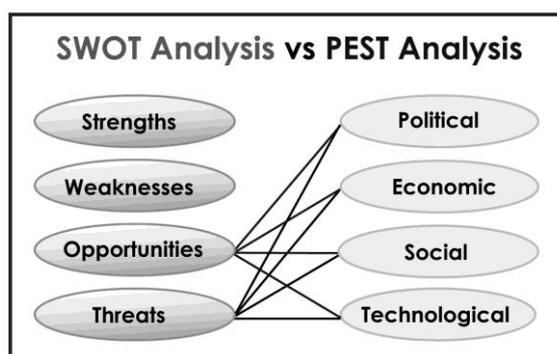
- **Analyzing Variance** - While measuring the actual performance and comparing it with standard performance there may be variances which must be analyzed. The strategists must mention the degree of tolerance limits between which the variance between actual and standard performance may be accepted. The positive deviation indicates a better performance but it is quite unusual exceeding the target always. The negative deviation is an issue of concern because it indicates a shortfall in performance. Thus in this case the strategists must discover the causes of deviation and must take corrective action to overcome it.
- **Taking Corrective Action** - Once the deviation in performance is identified, it is essential to plan for a corrective action. If the performance is consistently less than the desired performance, the strategists must carry a detailed analysis of the factors responsible for such performance. If the strategists discover that the organizational potential does not match with the performance requirements, then the standards must be lowered. Another rare and drastic corrective action is reformulating the strategy which requires going back to the process of strategic management, reframing of plans according to new resource allocation trend and consequent means going to the beginning point of strategic management process.

(ii) The natures and features of Strategic Planning are:-

- Strategic planning is a forward-looking exercise, which determines the future condition and attitude of the firm with special reference to its product market, profitability, size, rate of innovation etc.
- It is a systematic and disciplined exercise to formulate two types of plans—operating and strategic plan. The different units in an organisation implement the operating plans.
- Strategic plans are implemented through projects.
- It relates to the enterprise as a whole or to particular unit.
- Its time span of discretion is very much longer.
- The degree of uncertainty and risk involved in strategic planning are greater.

(iii) Difference between PEST and SWOT

The advantage and disadvantages of SWOT analysis is that it is simple to come up with a list but far too easy to miss important external factors. Coming up with the results of each factor is not enough, for the SWOT to be successful it is essential to carry out further analysis of all the possible threats and disadvantages to make sure that they have been planned for in advance. The advantages and disadvantages of PEST analysis is that while the external factors are looked at closely there are no internal evaluations carried out. Due to the advantages and the disadvantages of using either one or the other methods it is a good idea to combine the two to help provide you with the best analysis. It is good practice to perform the PEST and then use the results in the opportunities and threat section of the SWOT.



2. (b) (i) Describe the different types of Benchmarking. [10]

(ii) Difference between BCG and GE matrix. [5]

Answer:

(i) **Types of Benchmarking**

Internal Benchmarking - It involves looking within the organization to determine other departments, locations and projects which have similar activities and then defining the best practices amongst them. It involves seeking partners from within the same organization. For example, from business units located in different areas. The main advantages of internal benchmarking are that access to sensitive data and information are easier; standardized data is often readily available; and usually less time and resources are needed. There may be fewer barriers to implementation as practices maybe relatively easy to transfer across the same organization. However real innovation may be lacking and best in class performance is more likely to be found through external benchmarking.

External Benchmarking - External benchmarking involves seeking help of outside organizations that are known to be best in class. External benchmarking provides opportunities of learning from those who are at the leading edge, although it must be remembered that not every best practice solution can be transferred to others. In addition, this type of benchmarking may take up more time and resource to ensure the comparability of data and information, the credibility of the findings and the development of sound recommendations.

Generic Benchmarking - Generic benchmarking involves comparing with organizations that have similar processes. It involves the comparison of an organization's critical business processes and operations against best practice organization that performs similar work or deliver similar services. For example, how do best practice organization process customers orders. It extends the benchmarking process outside the organization and its industry to get inspiration from organizations in dissimilar industry.

Functional Benchmarking- This type of benchmarking is used when organizations look to benchmark with partners drawn from different business sectors or areas of activity to find ways of improving similar functions or work processes. This sort of benchmarking can lead to innovation and dramatic improvements.

Competitive Benchmarking - It involves examining the products, services and processes of competitors and then comparing them with their own. It involves the comparison of competitors' products, process and business results with own. It requires that the

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company perform a detailed analysis of its competitors' products, services, and processes. Benchmarking partners are drawn from the same sector. However to protect confidentiality it is common for the companies to undertake this type of benchmarking through trade associations or third parties.

Compatible Industry Benchmarking - Compatible industry will include those companies that are not directly competing for the same customer. It make comparisons within A general industry category. For example, a company, which is manufacturing automobile spare parts, compares itself with another company which is manufacturing automobile accessories.

Strategic Benchmarking - It is similar to the process benchmarking in nature but differed in its scope and depth. It involves a systematic process by which a company seeks to improve their overall performance by examining the long-term strategies. It involves comparing high-level aspects such as developing new products and services, core competencies etc.

Global Benchmarking - It is a benchmarking through which distinction in international culture, business processes and trade practices across companies are bridged and their ramification for business process improvement are understood and utilized. Globalization and advances in information technology leads to use this type of benchmarking.

(ii) Difference between BCG and GE matrices –

BCG Matrix	GE Matrix
1. BCG matrix consists of four cells	1. GE matrix consists of nine cells
2. The business unit is rated against relative market share and industry growth rate	2. The business unit is rated against business strength and industry attractiveness
3. The matrix uses single measure to assess growth and market share	3. The matrix used multiple measures to assess business strength and industry attractiveness
4. The matrix uses two types of classification i.e. high and low	4. The matrix uses three types of classification i.e. high/medium/low and strong/ average/ weak
5. Has many limitations	5. Overcomes many limitations of BCG and is an improvement over it

2. (c) (i) Describe the Differentiation Business Strategy and condition under which differentiation is used. [9]

(ii) List out the benefits of Vertical Integration [6]

Answer:

(i) Differentiation Business Strategy

When the competitive advantage of an organisation lies in special features incorporated into the product/ service which is demanded by the customers, who are willing to pay for it, then the strategy adopted is the differentiation business strategy. The organisation outperforms its competitors who are not able or willing to offer the special features that it can and does. Customers prefer a differentiated product/service when it offers them utility that they value and thus are willing to pay more for getting such a utility. A differentiated product or service stands apart in the market and is distinguishable by the customers for its special features and attributes.

A differentiator organisation can charge a premium price for its products/services, gain additional customers who value the differentiation and command customer loyalty. Profits for the differentiator organisation come from the difference in the premium price charged and the additional cost incurred in providing the differentiation. To the extent the organisation is able to offer differentiation by maintaining a balance between its price and costs, it succeeds. But it may fail if the customers are no longer interested in the differentiated features or are not willing to pay extra for such features.

Observe how the following organisations use differentiation business strategies:

- Orient Fans, a company within the Calcutta-based C. K. Birla group, offers premium ceiling fans based on superior technology and product innovation and is a major exporter to many global buyers including Wal-Mart of the USA. The technology differentiators are the core benefits of air delivery, reach of air and electricity consumption. The product attributes for differentiation are extra-wide blades, heavy duty motor, low wattage, high velocity and maximum area coverage. Rivals in the fan market include market leader Crompton and other like Usha, Khaitan and Bajaj. A large proportion of the fan market is dominated by fragmented, low cost suppliers in the unorganised sector and cheap imports from China.
- In an interesting case, packaging became the differentiator for Parle Agro when, in 1985, it launched Frooti, a non-aerated natural fruit-based drink, in tetra pack. The customer perceived glass bottled drinks to be synthetic. Frooti went on to become generic to the category of tetra packed fruit drinks, especially since it maintained price parity with the popular aerated drinks.

What each of these organisations does is to rely on its inherent strengths to offer special product/service features and attributes that are valued by the customers and for which she is willing to pay a premium price. This differentiation creation capability is then leveraged to achieve competitive advantage.

Condition under which differentiation is used –

- ❖ The firm knows who are its competitors and knows all the marketing mix.
- ❖ The market is too large and a few firms offering a standardised product.
- ❖ The customers' needs and preferences are too diversified.
- ❖ It is possible for the firm to charge a premium price for differentiation that is valued by the customer.
- ❖ The nature of the product is such that brand loyalty is possible to generate and sustain.

From differentiation the following benefits are available –

- ❖ it reduces the head to head rivalry,
- ❖ can avoid the threat of suppliers,
- ❖ can deal the threat from buyer,
- ❖ can deal the threat of substitute product and competitors,
- ❖ protect the entry of new firm.

(ii) Benefits of Vertical Integration:

Vertical integration potentially offers the following advantages:

- Reduce transportation costs if common ownership results in closer geographic proximity.
- Improve supply chain coordination.
- Provide more opportunities to differentiate by means of increased control over inputs.
- Capture upstream or downstream profit margins.
- Increase entry barriers to potential competitors, for example, if the firm can gain sole access to a scarce resource.
- Gain access to downstream distribution channels that otherwise would be inaccessible.

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- Facilitate investment in highly specialized assets in which upstream or downstream players may be reluctant to invest.
- Lead to expansion of core competencies.

One of the biggest advantages of vertical integration is that it often creates economies of scale and lowers production costs because it eliminates many of the price markups in each production step. Vertically integrated companies also achieve cost efficiencies by controlling quality at each step, which reduces repair costs, returns, and downtime. In addition, vertically-integrated companies do not have to allocate resources to pricing, contracting, paying, and coordinating with third-party vendors.

Vertical integration can ultimately create barriers to entry for potential competitors, especially if the company controls access to some or all of a scarce resource involved in production. This is why in some cases a company may control so much of the market or supply of raw materials that vertical integration can raise antitrust concerns.

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

Gujarat Mineral Development Corporation (GMDC) has two divisions. The Mining Division makes toldine, which is then transferred to the Metals Division. The toldine is further processed by the Metals Division and is sold to customers at a price of ₹ 1,500 per unit. The Mining Division is currently required by GMDC to transfer its total yearly output of 4,00,000 units of toldine to the Metals Division at 110% of full manufacturing cost. Unlimited quantities of toldine can be purchased and sold on the outside market at ₹ 900 per unit.

The following table gives the manufacturing costs per unit in the Mining and Metals divisions for 2014:

	Mining Division	Metals Division
Direct materials	₹ 120	₹ 60
Direct manufacturing labour costs	160	200
Manufacturing overhead costs	320 ^a	250 ^b
Total manufacturing costs per unit	₹ 600	₹ 510

^a Manufacturing overhead costs in the Mining Division are 25% fixed and 75% variable.

^b Manufacturing overhead costs in the Metals Division are 60% fixed and 40% variable.

(a) Calculate the operating incomes for the Mining and Metals divisions for the 4,00,000 units of toldine transferred under the following transfer-pricing methods: (a) market price and (b) 110% of full manufacturing costs. [6+6]

(b) Suppose GMDC rewards each division manager with a bonus, calculated as 1% of division operating income (if positive). What is the amount of bonus that will be paid to each division manager under the transfer-pricing methods in requirement (i)? Which transfer-pricing method will each division manager prefer to use? [5]

(c) What arguments would Amit, manager of the Mining Division, make to support the transfer-pricing method that he prefers? [3]

Answer:

Effect of alternative transfer-pricing methods on division operating income.

	Internal Transfers at Market Prices Method A	Internal Transfers at 110% of Full Costs Method B
(a) Mining Division		
Revenues		
₹ 900, ₹ 660 ¹ × 4,00,000 units	₹ 36,00,00,000	₹26,40,00,000

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Deduct		
Division variable costs:		
₹ 520 ² x 4,00,000 units	20,80,00,000	20,80,00,000
Division fixed costs		
₹ 80 ³ x 4,00,000 units	<u>3,20,00,000</u>	<u>3,20,00,000</u>
Division operating income	<u>₹ 12,00,00,000</u>	<u>₹ 2,40,00,000</u>
Metals Division		
Revenues		
₹ 1,500 x 4,00,000 units		
Deduct	₹ 60,00,00,000	₹ 60,00,00,000
Transferred-in costs		
₹ 900, ₹ 660 x 4,00,000 units	36,00,00,000	26,40,00,000
Division variable costs		
₹ 360 ⁴ x 4,00,000 units	14,40,00,000	14,40,00,000
Division fixed costs		
₹ 150 ⁵ x 4,00,000 units	<u>6,00,00,000</u>	<u>6,00,00,000</u>
Division operating income	<u>₹ 3,60,00,000</u>	<u>₹ 13,20,00,000</u>

- 1 ₹660 = ₹600 x 110%
- 2 Variable cost per unit in Mining Division = Direct materials + Direct manufacturing labour + 75% of Manufacturing overhead = ₹ 120 + ₹ 160 + 75% x ₹ 320 = ₹ 520
- 3 Fixed cost per unit = 25% of Manufacturing overhead = 25% x ₹ 320 = ₹ 80
- 4 Variable cost per unit in Metals Division = Direct materials + Direct manufacturing labour + 40% of Manufacturing overhead = ₹ 60 + ₹ 200 + 40% x ₹ 250 = ₹ 360
- 5 Fixed cost per unit in Metals Division = 60% of Manufacturing overhead = 60% x ₹ 250 = ₹ 150

(b) Bonus paid to division managers at 1% of division operating income will be as follows:

	Method A Internal Transfers at Market Prices	Method B Internal Transfer at 110% of Full Costs
Mining Division manager's bonus (1% x ₹ 12,00,00,000; 1% x ₹ 2,40,00,000)	₹ 12,00,000	₹ 2,40,000
Metals Division manager's bonus (1% x ₹ 3,60,00,000; 1% x ₹ 13,20,00,000)	₹ 3,60,000	₹ 13,20,000

The Mining Division manager will prefer Method A (transfer at market prices) because this method gives ₹12,00,000 of bonus rather than ₹ 2,40,000 under Method B (transfers at 110% of full costs). The Metals Division manager will prefer Method B because this method gives ₹ 13,20,000 of bonus rather than ₹ 3,60,000 under Method A.

(c) Amit, the manager of the Mining Division, will appeal to the existence of a competitive market to price transfers at market prices. Using market prices for transfers in these conditions leads to goal congruence. Division managers acting in their own best interests make decisions that are also in the best interests of the company as a whole. Further, setting transfer prices based on cost will cause the Mining Division to pay no attention to controlling costs since all costs incurred will be recovered from the Metals Division at 110% of full costs.

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

4. (a) (i) A company manufactures around 200 mopeds. Depending upon the availability of raw materials and other conditions, the daily production has been varying from 196 mopeds to 204 mopeds whose probability distribution is as given below:

Production per day	Probability
196	0.05
197	0.09
198	0.12
199	0.14
200	0.20
201	0.15
202	0.11
203	0.08
204	0.06

The finished mopeds are transported in a specially designed three storeyed lorry that can accommodate only 200 mopeds. Using the following 15 random numbers 82, 89, 78, 24, 53, 61, 18, 45, 04, 23, 50, 77, 27, 54, 10, simulate the process to find out:

- (a) What will be the average number of mopeds, waiting in the factory?
 (b) What will be the average number of empty spaces on the lorry? [5+5]

(ii) List out the advantages of Just-In-Time (JIT) System. [5]

Answer:

(i) Assignment of Random Numbers

Production per day	Probability	Cumulative Probability	Random Number
196	0.05	0.05	00-04
197	0.09	0.14	05-13
198	0.12	0.26	14-25
199	0.14	0.40	26-39
200	0.20	0.60	40-59
201	0.15	0.75	60-74
202	0.11	0.86	75-85
203	0.08	0.94	86-93
204	0.06	1.00	94-99

Based on the 15 random numbers given, we simulate the production per day in the table given below:

Simulation of data

S. No.	Random No.	Production	No. of mopeds waiting	No. of empty spaces in the lorry
1	82	202	2	—
2	89	203	3	—
3	78	202	2	—
4	24	198	—	2
5	53	200	0	0
6	61	201	1	—
7	18	198	—	2
8	45	200	0	0

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9	04	196	—	4
10	23	198	—	2
11	50	200	0	0
12	77	202	2	—
13	27	199	—	1
14	54	200	0	0
15	10	197	—	3
			10	14

(a) Average no. of mopeds waiting in the factory = $\frac{10}{15} = 0.67/\text{day}$

(b) Average no. of empty spaces in the lorry = $\frac{14}{15} = 0.93/\text{day}$

(ii) Advantages of Just-In-Time System

Following are the advantages of adopting Just-In-Time Manufacturing System:

- Just-in-time manufacturing keeps stock holding costs to a bare minimum. The release of storage space results in better utilization of space and thereby bears a favorable impact on the rent paid and on any insurance premiums that would otherwise need to be made.
- Just-in-time manufacturing eliminates waste, as out-of-date or expired product; do not enter into this equation at all.
- As under this technique, only essential stocks are obtained, less working capital is required to finance procurement. Here, a minimum re-order level is set, and only once that mark is reached fresh stocks are ordered, making this a boon to inventory management too.
- Due to the afore-mentioned low level of stocks held, the organization's return on investment (referred to as ROI, in management parlance) would generally be high.
- As just-in-time production works on a demand-pull basis, all goods made would be sold, and thus it incorporates changes in demand with surprising ease. This makes it especially appealing today, where the market demand is volatile and somewhat unpredictable.
- Just-in-time manufacturing encourages the right first time concept, so that inspection costs and cost of rework is minimized.
- High quality products and greater efficiency can be derived from following a just-in-time production system.
- Close relationships are fostered along the production chain under a just-in-time manufacturing system.
- Constant communication with the customer results in high customer satisfaction.
- Over production is eliminated, when just-in-time manufacturing is adopted.

4. (b) (i) The following standards have been set to manufacture a product:

Direct Material	₹
2 units of A @ ₹ 4 per unit	8.00
3 units of B @ ₹ 3 per unit	9.00
15 units of C @ ₹ 1 per unit	<u>15.00</u>
	32.00
Direct labour 3 hrs. @ ₹ 8 per hour	<u>24.00</u>
Total standard prime cost	<u>56.00</u>

The company manufacture and sold 6,000 units of the product during the year. Direct material costs were as follows:

12,500 units of A at ₹ 4.40 per unit

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18,000 units of B at ₹ 2.80 per unit

88,500 units of C at ₹ 1.20 per unit

The company worked 17,500 direct labour hours during the year. For 2,500 of these hours the company paid at ₹ 12 per hour while for the remaining the wages were paid at standard rate. Calculate materials price variances and usage variances and labour rate and efficiency variances. [5+5]

(ii) Define the "Simplex Method"? State its advantage over the Graphical method. [1+4]

Answer:

For Material Cost Variances

M₁ – Actual cost of material used

A	12,500 units × ₹ 4.40 =	₹ 55,000
B	18,000 units × ₹ 2.80 =	₹ 50,400
C	88,500 units × ₹ 1.20 =	₹ <u>1,06,200</u>
		<u>2,11,600</u>

M₂ – Standard cost of material used

A	12,500 units × ₹ 4.00 =	₹ 50,000
B	18,000 units × ₹ 3.00 =	₹ 54,000
C	88,500 units × ₹ 1.00 =	₹ <u>88,500</u>
		1,92,500

M₃ – not applicable

M₄ – Standard material cost of production 6,000 units × ₹ 32 = ₹ 1,92,000

Variances

Material price variance : M₁ – M₂ = ₹ 2,11,600 – ₹ 1,92,500 = ₹ 19,100 (A)

Material usage variance : M₂ – M₄ = ₹ 1,92,500 – ₹ 1,92,000 = ₹ 500 (A)

For Labour Cost Variance

L₁ – Actual wages paid to workers

2,500 hrs × ₹ 12 =	₹ 30,000
15,000 hrs × ₹ 8 =	₹ <u>1,20,000</u>
	<u>1,50,000</u>

L₂ – Payment involved, if workers had been paid at standard rate 17,500 hrs. × ₹8 = ₹1,40,000

L₃ and L₄ not required

L₅ – Standard labour cost of output achieved 6,000 units × ₹ 24 = ₹ 1,44,000

Variances:

Labour Rate Variance: L₁ – L₂ = ₹ 1,50,000 – ₹ 1,40,000 = ₹ 10,000 (A)

Labour efficiency variance: L₃ – L₅ = ₹ 1,40,000 – ₹ 1,44,000 = ₹ 4,000 (F)

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- (ii) The Simplex method is a computational procedure an algorithm for solving Linear Programming Problems. It is an iterative optimizing technique. In the Simplex process, we must first find an initial basic solution (extreme point). We then proceed to an adjacent extreme point. We continue moving from point to point until we reach an optimal solution.

Advantage of Simplex Method over the Graphical solution;

Algebraic method and Graphical method can only be used when there are only less than 2 variables in an LPP. Further Algebra will fail, if there are inequalities. In case the no. of variables exceeds 2, it will not be possible to solve the problem by Algebra/Graphically. In that case, we have to resort to the Simplex method only.

Simplex method is highly efficient and versatile as also amenable to further mathematical treatment and offers interesting economic interpretations. Thus it is possible to solve conveniently linear programming problem graphically, as long as the number of variables is not more than two. Further, the Simplex method is popular, due to its ability to easily program the algorithm on a computer.

Simplex methods use the concept of slack variables and two theorems- The Extreme Point Theorem and the Basis Theorem. In Simplex, we move from the initial basic solution to a better solution and proceed for a further better solution and so on, till we reach the optimum solution. As the Simplex method is quite tedious and highly computational, one has to keep his head cool while solving a LPP by Simplex method.

4. (c) (i) **Singular Products Co. Ltd. manufactured and sold in a year 15,000 units of a particular product fetching a sales value of ₹15 Lakhs. After charging direct material 30% on sales value, direct labour 20% on sales value, variable overheads ₹10 per unit, the company earned ₹16.67 per unit during the year.**

The existing equipment can produce a maximum of 20,000 units per annum. In case, the demand exceeds the maximum output, new equipment will be required which will cost ₹10 Lakhs and it will have a life span of 10 years, with no residual value.

A prospective customer is willing to place an order on the company for 10,000 units per year regularly at 90% of the present selling price, which will be, if accepted, over and above the existing market for 15,000 units.

Irrespective of the fact whether or not the new order materializes, the cost increase with immediate effect is :

- (a) 10% in the Direct Materials.**
- (b) 25% in the Direct Labour.**
- (c) ₹50,000 in Fixed overheads per year.**

If the order of additional 10,000 units is accepted, the Fixed overhead will increase by another ₹50,000 by way of increased administration expenses.

You are required to recommend whether the company should accept the new business at the stipulated price or decline the new order and make a concerted sales drive to sell the present unused capacity at the present selling price? The sales drive will cost ₹60,000 per year.

Ignore the financial charges on the cost of the equipment and assume there are no opening/closing stock inventories. Variable cost will increase in direct proportion to the output.

[3+3+3+1]

- (ii) Write a note on Kaizen Costing.**

[5]

Answer to PTP_Final_Syllabus 2012_Dec2015_Set 2

Answer:

- (i) Present Selling Price = ₹15,00,000 / 15,000 = ₹ 100 per unit.

Present Cost Structure:

₹

Sales	15,00,000
Direct Materials (30% of sales value)	4,50,000
Direct Labour (20% of sales value)	3,00,000
Variable overheads (₹10 per unit) 10x15,000	1,50,000
Total	9,00,000
Contribution	6,00,000
Profit (₹16 2/3 per unit)	2,50,000
Fixed overheads (Balancing figure)	3,50,000

Comparative statement of the proposals (Revised Cost basis)

Capacity Units	Present Capacity 15,000	Maximum 20,000	Present Plus 10,000 units 25,000
Sales Value	15,00,000	20,00,000	15,00,000 (+) 9,00,000 <u>24,00,000</u>
Direct Materials (33% on sales value) (10/15x4,95,000)	4,95,000	6,60,000	4,95,000 (+) 3,30,000
Direct Labour (25% on sales value) (10/15x3,75,000)	3,75,000	5,00,000	3,75,000 (+) 2,50,000
Variable overhead (₹10 per unit)	1,50,000	2,00,000	2,50,000
Fixed overhead	3,50,000 (+) 50,000	3,50,000 (+) 50,000	3,50,000 (+) 50,000 (+) 50,000
Sales Drive Depreciation on new equipment		60,000	— 1,00,000
Total Costs	14,20,000	18,20,000	22,50,000
Profit	80,000	1,80,000	1,50,000

It will be advisable for the company not to accept the offer, instead it should make a concerted sales drive to sell the present unused capacity at the present selling price and sell 20,000 units, since this option yields a higher profit.

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

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