MOCK TEST PAPER – 2

FINAL COURSE: GROUP – II

PAPER – 5: STRATEGIC COST MANAGEMENT AND PERFORMANCE EVALUATION

SUGGESTED ANSWERS/HINTS

1. In consideration to Michael Porter's theory about creating a superior performance and competitive advantage, a firm's overall competitive advantage derives from the difference between the *value it offers to customer* and its *cost of creating that customer value*. In order to survive and prosper in industry, firm must meet two criteria– they *must supply what customers want* to buy and they *must survive competition*.

To attain superior performance and attain competitive advantage, firm must have *distinctive competencies*. Distinctive competencies can take any of the following two forms:

Relative low-Cost advantage– under which customers gain when a firm's total costs undercut those of its average competitor.

An offering or differentiation advantage– If customer perceive a product or service as superior, they become more willing to pay a premium price relative to the price they will have to pay for competing offerings.

Low Cost Advantage (Cost Leadership)

ZA can enjoy relative cost advantage if its total costs are lower than those of its competitors. This relative cost advantage enables a business to do one of the following:

– Charge a lower price than its competitors for its services to gain market share and still maintain current profitability; or

– Match with the price of competing services and increase its profitability.

Cost reductions in ZA can be achieved through yield management with variable pricing depending on capacity utilization with careful monitoring; application of computer and communication technology in cost effective way i.e. selling seats via the internet rather than through travel agents; trimming overhead costs by using lower cost out-of-town airports, no printed tickets, seat allocations, or free meals and drinks; efficient operations i.e. fast turnaround times for aircraft to improve utilization; and no exceptions policies to reduce the cost of handling exceptions (e.g. no flexibility for passengers who arrive late). Cost economies can also be realized from large scale operations. However, it is important to note that as soon as more firms strive to become the cost leader, rivalry become so fierce that the consequences for the profitability in the industry are disastrous.

Differentiation Advantage

It occurs when customers perceive that a business services offering is of higher quality, involves fewer risks and/or outperform services offered by competitors. In other words, customers perceive the service offered by a business to be superior. For example, differentiation may include a firm's ability to deliver services, and other factors that provide unique customer value. ZA is a multinational passenger airline. It can adopt a differentiation approach by offering passengers a higher-quality experience than many of its rivals. This allows it to charge a premium for its flights compared to many other airlines.

A differentiation advantage can be achieved by offering enhanced features such as prime landing slots can be obtained at major airports around the world; using superior and advance technology; well-maintained, clean, and comfortable aircraft; training in customer care and the recruitment of high-quality staff; providing complementary services such as in-flight entertainment, high-quality food, and drink. Customer value can also be increased by *subjective features* such as brand image, advertising

based on quality of service provided. However, differentiator cannot ignore its cost position. If costs are too high the premium price are nullified.

On successfully differentiated its offering, management of ZA may exploit the advantage in one of two ways viz., either increase price until it just offsets the cost of improvement in customer benefits, thus *maintaining* current market share; or price below the "full premium" level to *build* market share.

Alternatively, ZA may focus on geographical region and short point to point flights to reduce costs. Michael Porter enlightens focus as attaining low cost or product differentiation for a *particular* buyer group, segment of product line, or geographic market rather than for the industry as a whole. The focuser can attain competitive advantage within a niche, because large firms are either not attracted to niche or have ignored the potential. The narrow focus in itself though is not adequate for a competitive advantage. The firms need to optimize the strategy on two variants: cost focus and differentiation focus. One risk of a 'focus strategy' is that broadly targeted competitors devastate the segment once it becomes economically attractive.

In addition, the currency depreciation is hitting Airlines harder and international overhead costs have risen, the ZA should attempt to increase the number of internal domestic flights. Moreover, ATF cost can also be lowered by investment in fuel saving modern Airbuses, however, the reduction in operating costs may outweigh the capital equipment costs.

To gain competitive advantage ZA may also assess Value Shop Model. Value Shop generates value by organizing resources (e.g. people, knowledge, and skills) and deploying them to solve specific problems, for example, delivering airline services to the passengers or delivering a solution to the business problem. Shops are organized around making executing decisions- identifying and assessing problems or opportunities, developing alternative solutions or approaches, choosing one, executing it and evaluating results.

In this way, the above discussed strategies may be more appropriate for helping ZA in achieving superior performance and competitive advantage over its competitors.

2. (i) ROI

Division 'Z'

Controllable Profit = ₹ 5,290K

Net Assets = ₹ 19,520k + ₹ 4,960K – ₹ 5,920K = ₹ 18,560K

ROI = 28.5%

Division 'E'

Controllable profit = ₹ 3,940K

Net Assets = ₹ 29,960K + ₹ 6,520K – ₹ 2,800K = ₹ 33,680K

ROI = 11.7%

In computation of ROI of both division, *controllable profit* has been taken into consideration. The reason behind this is that the Head Office costs are not controllable and responsibility accounting considers that managers should only be held responsible for costs over which they have control. The assets figures being used also depend on the same principal. Figures of current assets and the current liabilities have been taken into consideration as they are such items over which managers have complete control.

(ii) Bonus

Bonus to be paid for *each percentage point* = ₹ 7,20,000 × 3% = ₹ 21,600

Maximum Bonus = ₹ 7,20,000 × 20% = ₹ 1,44,000

Division 'Z'

ROI = 28.5% (16 whole percentage points above minimum ROI)

16 × ₹ 21,600 = ₹ 3,45,600

Therefore, manager will be paid the bonus of ₹ 1,44,000 (max.)

Division 'E'

ROI = 11.7% (Zero, percentage point above minimum)

Therefore Bonus = NIL

(iii) Discussion

FAI will not receive any bonus since he has not earned any point above minimum percentage. This is due to the large asset base on which the ROI figure has been computed. Total assets of Division 'E' are almost double the total assets of Division 'Z'. The major reason behind this is that Division 'E' invested ₹ 13.6 million in new equipment during the year. If this investment were not made, net assets would have been only ₹ 20.08 million and the ROI for Division 'E' would have been 19.62% resulting in payment of a bonus ₹ 1,44,000 (7 × ₹ 21, 600 = ₹ 1,51,200; subject to maximum of ₹ 1,44,000) rather than the nothing. FAI is being penalized for making decisions which are in the best interests of his division. It is very surprising that he decided to invest where he knew that he would receive lesser bonus subsequently. He acted in the best interests of the X Ltd. altogether. On the other hand, HAI has taken benefit from the fact that he has not invested anything even though it was needed for computer system updation. This is an example of sub-optimal decision making.

Further, Division 'Z''s trade payables are over double those of Division 'E'. In part, one would expect this due to higher sales (almost 66% more than Division 'E') and low cash levels at Division 'Z'. Higher trade payable leads to reduction in net assets figures. The fact that X Ltd. is rewarding HAI with bonus, even though relationships with suppliers may be badly affected, is again a case of sub-optimal decision making.

If the profit margin (excluding head office cost) as percentage of sales is calculated, it comes to 18.24% for Division 'Z' and 22.64% for Division 'E'. Therefore it can be seen that Division 'E' is performing better if capital employed is ignored. ROI is simply making the division 'E''s performance worse.

FAI might feel extremely disappointed by getting nothing and in the future, he may opt to postpone the investment to increase the bonus. Non- investing in new technology and equipment will mean that the X Ltd. will not be kept updated with industry changes and its overall future competitiveness will be affected.

Briefly, the use of ROI is resulting in sub-optimal decision making and a lack of goal congruence i.e. what is good for the managers is not good for the company and vice versa. Fortunately, Division 'E''s manager still seems to be acting for the benefit of the X Ltd. but the other manager is not. The fact that one manager is receiving a much bigger bonus than the other is not justifiable here and may result in conflict in long run. This is disappointing for the company especially in the situation when the divisions need to work in unison.

3. (i) Shyam Paper Mart

Environmental Cost Statement

Particulars	H1		H2	
	Amount (in lakhs)	% to total	Amount (in lakhs)	% to total
Environmental Prevention Costs				
Creating Environment policies [(6/2) × 0.8] [(6/2) × 1.1]	2.4	0.68	3.3	0.96

Investment in protective equipment [(7,725 – 65) – 7,620]	-	-	40#	11.58
Sub-Total (a)	**2.4**	**0.68**	**43.3**	**12.54**
Environmental Detection Costs				
Monitoring (78 in the ratio of 1:2)	26	7.40	52	15.06
Performing Contamination test	-	-	4	1.16
Environmental Audit [1 × 8] [2 × 8]	8	2.28	16	4.63
Sub-Total (b)	**34**	**9.68**	**72**	**20.85**
Environmental Internal Failure Costs				
Recycling Scrap (275 in the ratio of 3:2)	165	46.95	110	31.86
Disposing of Toxic Material	150	42.69	120	34.75
Sub-Total (c)	**315**	**89.64**	**230**	**66.61**
Grand Total (a + b + c)	**351.4**	**100**	**345.3**	**100**

 # Since the details regarding useful economic life of the newly erected plant and the machine is not given, hence the entire incremental cost recognised in H2 only (when put to use); despite the benefit will arise over the useful economic life in form of a reduction in generation of waste.

(ii) Analysis

The environmental cost incurred in H2 (₹345.3 lakhs) is comparatively less than what was incurred in H1 (₹351.4 lakhs). Environmental internal failure costs reduced in H2 (₹ 230 lakhs) in comparison to H1 (₹315 lakhs), but still a substantial component of total environmental costs (66.61% in H2 against 89.64% in H1). The reduction of environmental internal failure costs is the outcome of increased environmental prevention costs (12.54% in H2 against 0.68% in H1) and environmental detection costs (20.85% in H2 against 9.68% in H1).

Note** – Since the policy document also states 'zero discharge of waste/scrap into the environment, in order to be true-sense eco-friendly enterprise' hence there are no **environmental external failure costs.

(iii) Evaluation

Apart from getting the certificate, the cross-functional team has terms of reference *'**to improve the environmental impact** & **image of SPM as eco-friendly enterprise** and **control environmental cost'***

In the context of **controlling environmental cost**, the team attained a reasonable reduction in total environmental cost, impact in this environmental cost statement (over H1 and H2) seem low because the incremental cost due to purchase of premium version of plant and machine is charged in H2, which will benefit in form reduced waste over the useful economic life.

In the context of **improving the image of SPM as an eco-friendly enterprise**, the policy document which in practice also states– *'zero discharge of waste/scrap into the environment, in order to be true-sense eco-friendly enterprise'* and same is also visible through environmental cost statement as there are no environmental external failure costs

In the context of **improving the environmental impact**, SPM able to generate low waste in H2 (2,000 MT) in comparison of H1 (3,000 MT) just by installing new plant and machine which produce less waste, increased monitoring, and audits.

Hence it can be concluded that the team is successfully serving the terms of reference.

4. (a) Firms can face situations where they are confronted with the opportunity of offering for a one-time special order. In this situation only the *incremental costs* of undertaking the order should be taken into consideration. *Quote should be made at prices that exceeds incremental costs*. Any

excess of revenues over incremental costs will provide a contribution to committed fixed cost which would not otherwise have been gained.

'Z Makers' can use the incremental cost numbers for pricing the 'rush order'. The *minimum* price that firm would charge is ₹ 195 per suit (=₹ 25,350/130). This price is well below normal price of ₹ 510.

Particulars	Amount (₹)
Cleaning materials (130 × ₹ 35)	4,550
Labour (130 × 3 × 40% × ₹ 50 × 1.5)	11,700
Variable overheads (130 Suits × 70)	9,100
Incremental cost	25,350

However, in decision making other conditions are equally important. For instance, if this is a one-time deal with **no prospect of repeat business**, then 'Z Makers' might well charge a *premium over the normal price*. Long-term implications also matter. The prospect of "getting a foot in the door" to quote for future business would push the *price downward*. Therefore, 'Z Makers' can price based on both the short-run benefits from accepting the order and the long-run consequences.

(b) Decision Making – P Ltd.

(i) With increasing completion, dynamic market changes, changing needs of customers, *non-financial* and *ethical considerations* have gained relevance in the decision- making process. A company may face the dilemma of meeting customers' needs while protecting employees' rights. While there are no clear-cut parameters to measure the impact of such decisions, they have a *long-term impact* on the company's operations that ensures profitability and sustainability of an organization.

In the given scenario, a customer who contributes close to 60% of P Ltd.'s profits has been making turnaround demands that are unreasonable for the company employees to meet. P Ltd. has to decide whether to continue doing business with the customer based on the current terms or protecting the work environment of its employees. In the current scenario, *it is in P's long term interests to protect its employees' rights (a non-financial consideration). Keeping this approach in mind, P Ltd. decided to terminate business with the profitable client. While this had a significant impact on revenues in the short term, in the long run P Ltd. was able to get business from new clients.* Also, realizing the *value of service* provided, the dropped client came back with projects on equitable terms. Therefore, even though it did not make financial sense in the short run, decisions based on non-financial metrics played an important role in ensuring P Ltd.'s long term sustainability.

OR

(ii) Qualitative factors to consider while making the outsourcing and make or buy decisions:

(a) Quality of goods produced outside vs. in-house production of the component. Outsourcing or buying a component from the external market, should not impact the overall quality of the product. Therefore, *any component critical for a product would generally not be outsourced unless its supplier gives quality assurance*.

(b) *Reliability of suppliers* in the outsourcing arrangement. Assurance must be given by the supplier in terms of both quality and timely delivery of components for the given price. Also, there must be a sufficient pool of suppliers from whom the company can

buy the product. If one supplier closes shop, there must be alternate suppliers available.

(c) *Availability of skilled labor and infrastructure* to make the component in-house. If not available, then the component may have to be bought from the external market.

(d) *Regularity of demand for the product* – If made in-house, seasonal demand for a product may result in the risk of holding high inventories (including that of raw materials) or making high capital investments that will prove unproductive during off-season. Therefore, *outsourcing or buying from external market may be more viable when the demand for the final product is seasonal*.

(e) *Risk of technological obsolescence for the component* – when the risk is higher company may favor outsourcing.

(f) *Confidentiality of process or patent of process* – Confidential processes or critical components may not be outsourced.

(g) The shutting down of company's manufacturing facility might have a negative impact on the morale of remaining employees.

(c) Statement Showing 'Customer Profitability Analysis'

Particulars	T_1	T_2	Channel Total	T_3	T_4	Channel Total
	Small Stores			Large Stores		
Revenue at List Price	1,60,000	1,80,000	3,40,000	25,50,000	12,00,000	37,50,000
Discount	8,000	18,000	26,000	4,59,000	1,44,000	6,03,000
Net Revenue	152,000	1,62,000	3,14,000	20,91,000	10,56,000	31,47,000
Variable Costs	1,28,000	1,44,000	2,72,000	20,40,000	9,60,000	30,00,000
Contribution Margin	24,000	18,000	42,000	51,000	96,000	1,47,000
Order Processing	3,000	6,750	9,750	4,500	2,250	6,750
Regular Deliveries	1,500	3,375	4,875	2,250	1,125	3,375
Expedited Deliveries	2,500	---	2,500	2,500	---	2,500
Customer Profit	17,000	7,875	24,875	41,750	92,625	1,34,375
Channel Cost			20,250			48,375
Channel Profit			4,625			86,000

Comment

T is only just at breakeven point with small pharmaceuticals. To improve profit T should:

(i) Coordinate with T_2 to *increase order size* and try to *negotiate a smaller discount*.

(ii) Try to work with T_1 to *reduce number of expedited deliveries*.

T makes substantial profit from the large pharmaceuticals. T may give *little extra attention* on T_4 as T_4 is most favorable customer and its order is for large quantities. For T_3, T may have *no options* as T_3 accounts more than 50% of Sales.

5. (a) (i) Identification of Bottleneck: Installation of cameras is the bottleneck in the operation cycle. The annual capacity for manufacturing and installation are given to be 750 camera units and 500 camera units respectively. Actual capacity utilization is 500 camera units, which is the maximum capacity for the installation process. Although, 'A One Security' can additionally manufacture 250 camera units, it is constrained by the maximum units that can be installed. Therefore, the number of units manufactured is limited to 500 camera units, subordinating to the bottleneck installation operation. Therefore, 'A One Security' should

focus on improving the installation process.

(ii) Improving Capacity of Installation Technique: Every camera sold increases the through put contribution by ₹ 1,500 per camera unit (sale price ₹ 2,500 per camera unit less direct material cost ₹ 1,000 per camera unit). By improving the current installation technique an additional 50 camera units can be sold and installed. This would involve total additional expenditure of ₹ 40,000. Hence, the incremental benefit would be:

Particulars	Amount (₹)
Increase in throughput contribution (additional 50 camera units ₹1,500 per camera unit)	75,000
Less: Increase in total expenditure	40,000
Incremental benefit	35,000

Since the annual incremental benefit is ₹ 35,000 per annum, 'A One Security' should implement this improvement to installation technique, the current bottleneck operation.

(iii) Improving Manufacturing Capacity: Every camera sold increases the throughput contribution by ₹ 1,500 per camera unit (sale price ₹ 2,500 per camera unit less direct material cost ₹ 1,000 per camera unit). By improving the current manufacturing technique an additional 150 camera units can produced. This would involve a cost ₹ 100 per camera unit due to necessary changes to made in direct materials. Therefore, number of units manufactured can increase to 650 camera units. However, production of 150 camera units will not translate into additional sales, because each sale also requires installation by 'A One Security'. In a year only 500 camera installations can be made, leading to an inventory pile up of 150 camera units. This is detrimental to 'A One Security', since it does not earn any contribution by holding inventory. Therefore, 'A One Security' should not go ahead with the proposal to improve the manufacturing technique.

(b) There are potential advantages and disadvantages of the involvement of staff in the preparation of the budget.

Potential advantages include:

- Senior staff may agree to accept the targets because they would take ownership of it as their budget.
- Senior staff may have a better understanding of what results can be achieved and at what costs. For example, they may have a better knowledge of individual courses and how they may be delivered more efficiently and cost effectively.
- Senior staff cannot blame unrealistic goals as an excuse for not achieving budget expectations.
- Senior staff would feel that they are being appreciated for the value that their experience brings to the running of the management school.
- Senior staff may get the opportunity to discuss organisational issues, in which an exchange of information and ideas can help to solve problems and agree future actions.

Potential disadvantages include:

- Senior staff may be excellent academically but could lack the practical knowledge required to formulate their budget.
- Senior staff may limit the benefits of participation due to personality traits of participants.
- Senior staff may consume a great deal of time arguing with each other (and with the school director).

Senior staff may decide among themselves to artificially inflate the proposed budget so that it is easier for them to attain the cost targets they have set.

6. (a) The unit selling price of '**Zentonic'** that will maximise revenue and maximise profit can be easily derived through *demand function*. The graph shows sales revenue is maximised at 40,000 units and contribution **(so profit)** is maximised at 34,000 units.

Note – Fixed cost will be fixed irrespective of the level of activity (presuming fixed cost does not hold feature of step cost).

To calculate the selling price for these two levels of output, we can insert the number of units into the equation for the demand function.

Demand function **q = 80,000 – 2,000p** or **p = 40 – 0.0005q**

Whereas p represents selling price and q represents level of output.

Revenue will be maximum when the selling price will be **₹ 20**.

When q is 40,000 units of Zentonic pens,

⇨ 40,000 = 80,000 – 2,000p

⇨ 2,000p = 40,000

⇨ Then p will be **₹ 20**

Profit will be maximum when the selling price will be **₹ 23**

When q is 34,000 units of Zentonic pens,

⇨ 34000 = 80,000 – 2,000p

⇨ 2,000p = 46000

⇨ Then p will be **₹ 23**

Accordingly, sales revenue at profit maximisation level would be ₹ 7,82,000 (₹ 23 × 34,000 units) and the expected profit at this level is already given i.e., 5,78,000 (refer graph). Therefore, variable cost will be ₹ 2,04,000 or ₹ 6 per unit. [not required in question]

The marketing head is striving to keep the price low as possible to make capture the commercial space and maximise the revenue. The pricing strategy advocated by him is **penetration pricing**. It includes setting the price low with the goals of attracting customers and gaining market share. The price will be raised later once this market share is gained.

The finance head argued in favour of keeping the price high to maximise the profit because the design and R&D of Zentonic will not be matched by the competitors currently. The pricing strategy advocated by him is **price skimming**. Under price skimming, high prices are set when a new product is launched so that fewer sales are needed to break even and to reimburse the cost of investment of the original research into the product. Since it involves selling a product at a high price, sacrificing high sales to gain a high profit is therefore called "skimming" the market. Price dropped to increase demand once the customers who are willing to pay more have been 'skimmed off'.

The pricing strategy adopted for '**ZenZick'** is **freemium**, freemium is a revenue model that works by offering a product or service free of charge (typically digital offerings such as software) while charging a premium for advanced features, functionality, or related products and services. The word "freemium" is a portmanteau combining the two aspects of the business model i.e., "free" and "premium".

(b) Variance Interpretation

The sales quantity variance and the sales mix variance describe how the sales volume contribution variance has been affected by a change in the *total quantity of sales* and a *change in the relative mix of products sold*.

From the figures arrived for the sales quantity contribution variance, we can observe that the increase in total quantity sold would have gained an additional contribution of ₹ 2,124,600, if the actual sales volume had been in the budgeted sales proportion.

The sales mix contribution variance shows that the variation in the sales mix resulted in a curtailment in profit by ₹ 570,600. The change in the sales mix has resulted in a relatively higher proportion of sales of Q-2 which is the chemical that earns the lowest contribution and a lower proportion of Q-1 which earn a contribution significantly higher. The relative increase in the sale of Q-3 however, which has the highest unit contribution, has partially offset the switch in mix to Q-2.

Workings

Statement Showing Standard Contribution

	Q-1 ₹/ kg	Q-2 ₹/ kg	Q-3 ₹/ kg
Average Selling Price	17,600	2,560	22,400
Direct Material (C_2H_6O) Cost	8,000	1,280	9,600
Direct Labour Cost	3,200	480	4,800
Variable Overhead Cost	320	48	480
Contribution	6,080	752	7,520

Sales Contribution Mix Variance

Products	Actual Quantity [AQ]	Actual Sales at Budgeted Proportion [RAQ]	Difference [AQ – RAQ]	Contribution ₹ [SC]	Mix Variance (₹' 000) SC × [AQ – RAQ]
Q-1	900	1,150	250 (A)	6,080	1,520 (A)
Q-2	3,875	3,737.50	137.50 (F)	752	103.40 (F)
Q-3	975	862.50	112.50 (F)	7,520	846 (F)
	5,750	5,750			570.60 (A)

Sales Contribution Quantity Variance

Products	Budget Sales Quantity [BQ]	Actual Sales at Budgeted Proportion [RAQ]	Difference [RAQ - BQ]	Contribution ₹ [SC]	Qty. Variance (₹' 000) SC × [RAQ – BQ]
Q-1	1,000	1,150	150 (F)	6,080	912 (F)
Q-2	3,250	3,737.50	487.50 (F)	752	366.60 (F)
Q-3	750	862.50	112.50 (F)	7,520	846 (F)
	5,000	5,750			2,124.60 (F)