PAPER – 5: STRATEGIC COST MANAGEMENT AND PERFORMANCE EVALUATION

*Question No.**1** is compulsory.*

*Answer any **four** questions from the remaining **five** questions.*

Working notes should form part of the answers.

No statistical or other table will be provided with this question paper.

Question 1

ABC Metals Limited, a pioneer in pure Lead metal and alloys commenced its operations in the year 2005 in in 50 acres of land. The Lead smelting involves a series of steps that lead to the extraction of pure Lead from its ore. Smelting is carried out in a blast, reverberatory, and rotary kiln furnaces. Blast furnaces produce hard or antimonial Lead containing about 10 percent antimony. The industry generates wastes in the form of toxic wastewater, solid waste, as well as volatile compounds like sulfur dioxide that are released into the air.

The plant since its inception is doing well commercially, but has long been opposed by environmentalist on the contention that it is polluting the environment and causing health problems. The plant has been subjected to several demands of closure on the grounds of violating environmental norms. The environmental activists recently came down heavily in print and electronic media, alleging that the promoters of ABC Metals Ltd. are violators of numerous regulations. They allege that the commercial considerations of the management are completely replacing the cause of social responsibility.

The promoters of ABC Metals Ltd. hail from a business family having a good reputation. With the happenings at the Lead smelter, the family decided to give a fair thought and to develop a constructive approach to draw a reasonable conclusion. They want to put all the allegations, counter allegations and consequential litigations to rest by revamping the practices and by adopting all necessary precautions. The Chairman of ABC Metals Ltd. believes in the principle that "for discharging any social or ethical responsibility, the commercial viability also is one of the pre-requisite", They approached "XYZ Consulting Group", having an international reputation, to strike a meaningful solution to this complex situation.

The Chairman of ABC Metals Ltd., got very much impressed by the following initial remarks of the Chief Consultant of 'XYZ Consulting Group', in the first meeting itself and decided to engage their services.

"Economic growth of a Nation as well as organization's financial growth is driven by many factors such as technological advancement, savings and investment rates, government policies and in turn it is resulting in reduction in Natural Resources, Pollution, Climate Change, Global Warming, Industrial and Household Waste, Ozone Layer Depletion etc. This requires special attention and therefore preservation of natural resources and environmental awareness has initiated a novel branch of accounting known as Environmental Accounting or Green Accounting which seems to be lacking in major areas of your organization. In an increasingly global economy, effective management of environmental cost and performance may become a source of competitive advantage."

ABC Metals Ltd. documented terms with 'XYZ Consulting Group' to initiate Green Accounting aspects. 'XYZ Consulting Group' deployed a team of consultants with a right blend of juniors and seniors to carry out the analysis on environmental costs of ABC Metals Ltd. by dividing them in first place into four sections viz:

(1) Conventional Costs; (2) Hidden Costs;

(3) Contingent Costs; (4) Relationship Costs.

Which are further sub-divided into Internal Costs and External Costs.

After discussions and thorough analysis, the working team in its final report identified and suggested many areas for control and out of which four areas of Environmental Cost control are more crucial viz.:

(1) Waste, (2) Water consumption, (3) Energy and (4) Consumables and Raw materials.

Based on the above stated scenario you are required to:

(a) ANALYZE the views expressed by the Chief Consultant in the initial remarks. ***(2 Marks)***

(b) LIST the major areas which are likely to be suggested by 'XYZ Consulting Group' where Environmental Management Accounting (EMA) can be applied for ABC Metals Limited.

(2 Marks)

(c) DISCUSS briefly all the six forms of environmental costs classified by the working team for ABC Metals Limited. ***(6 Marks)***

(d) DESCRIBE what is meant by identification of Environmental costs. ***(2 Marks)***

(e) ANALYSE two Environmental Management Accounting Techniques; Input-Output Analysis and Flow Cost Accounting with their relevance in the context of manufacturing process of ABC Metals Limited. ***(3 Marks)***

(f) EVALUATE the steps that could be suggested in the final report by 'XYZ Consulting Group' in the four areas of Environmental cost control referred by the working team. ***(5 Marks)***

Answer

(a) <u>Analysis</u> of views expressed by the Chief Consultant of XYZ Consulting Group

The view expressed by the Chief consultant of the XYZ Group appears to be reasonable based on the core aspects of the Environmental Management Accounting.

Environment Management Accounting (EMA) is the process of collection and analysis of the information relating to environmental cost for internal decision making. EMA identifies and estimates the costs of environment-related activities and seeks to control these costs. The focus of EMA is not only on financial costs, but it also considers the environmental cost or benefit of any decisions made. EMA is an attempt to integrate the best management accounting thinking with the best environmental management practice.

ABC Metals Ltd seems to ***have no adequate documented measures with respect to environmental costs and consequences. If it does so it could not have been trapped in the ambit of allegations and counter allegations by the public at large. This is more-true with ABC Metals Ltd. in particular where the management has been positively characterized on ethical considerations***. EMA disseminates what is done and what is to be done with respect to the current problems that the company is facing.

As pointed out by the Chief Consultant of XYZ Group effective management of environmental costs and performance may become the ***source of competitive advantage*** of ABC Metals Ltd.

(b) List of major areas where Environment Management Accounting (EMA) can be applied to ABC Metals Ltd.

XYZ Consulting Group may suggest the following areas where Environment Management Accounting (EMA) may be applied:

- Product Pricing
- Budgeting
- Investment Appraisal
- Calculating Costs
- Saving of Environmental Projects
- Setting Qualified Performance Targets
- External Reporting – Disclosure of Environmental Expenditures, Investments and Liabilities.

(c) Discussion on forms of Environmental Costs:

- **Conventional Costs: Raw material and energy costs having environmental relevance.**

  The lead smelter uses natural resources like ores from which lead is extracted. ***Blast, reverberatory and rotary kiln furnaces require significant energy resources*** to operate. ABC Metals Ltd. will need to understand, using the raw materials obtained from nature in the ***most productive way to get the highest possible yield***. Energy utilization has to be monitored possibly through energy audits to make sure ***energy efficient equipment*** is used in the production process, wastage of energy is limited.

- **Hidden Costs: Costs which have been accounted for but then lost their identity in "general overheads".** Costs such as freight and transport, storage, utilities, water consumption etc. are hidden in the overhead costs. ABC Metals Ltd. has to identify these costs that by ***nature affect the environment albeit indirectly***. ***Optimum utilization*** of space, utilities, transportation facilities would help the company reduce such costs.

- **Contingent Costs: Costs that have to be incurred on a future date for example clean – up costs.** ***Environmentalists have accused ABC Metals Ltd. of violating numerous regulations***. There is a ***potential threat of fines***, ***penalties*** with the spectre of closure of business looming ahead in the future. These would be contingent costs that the company has to consider. The threat of such contingent costs can be reduced by ***addressing the ways*** in which its operations are allegedly polluting the environment and causing health problems.
- **Relationship Costs: Intangible costs, for example the costs of preparing environment reports.** Identification of environmentally relevant costs requires a system to be put in place to trace such costs. It involves ***the time*** and ***effort of personnel*** at various levels within the organization, hiring experts and ***dealing with government departments*** for getting appropriate permits. The system developed has to be maintained and monitored continuously. Reports for the management have to be generated for further perusal and action. This requires ***resource commitment*** from ABC Metals Ltd. in the form of money, equipment and personnel. The company has to consider the ***cost benefit analysis*** while developing this system. While the ***promoters have the intention of constructively addressing this problem***, the system in place should be feasible to operate and financially viable.
- **Internal Costs:** Costs that have a ***direct impact on the income statement*** like waste disposal costs, maintain systems to avoid penalties / fines for non-compliance of environment standards. For ABC Metals Ltd. ***costs of recycling scrap***, ***health care costs*** to employees working in hazardous conditions, penalties paid to environment agencies etc. can be considered internal costs. These costs have a direct financial impact on its income.
- **External Costs:** Costs ***imposed on the society*** at large but not borne by the company that generates the costs in first instance. ***Costs of disposing toxic wastewater, solid wastes and harmful gases into the environment can be considered external costs.*** The impact of these actions has affected the society due to pollution of air, soil and water. It has also impacted the health of the people living there. The company should ***try to eliminate this cost entirely by putting in place clean up systems*** that can safely dispose these wastes, water and gases.

(d) Identification of Environmental Costs:

To prepare environmental management accounts an ***intense review*** of the general ledger containing costs of materials, utilities, water disposal etc. is required. ***Many of the environment costs are "hidden" in "general overheads" of the company***. It becomes difficult for the management to identify opportunities to cut the environment costs but nonetheless it is crucial for them to do so to preserve the natural resources getting scarcer.

Allocation of environmental costs to the processes or products which give rise to them is equally important for organizations in making ***well informed business decisions***.

(e) Analysis of Environment Management Accounting Techniques:

- ***Input-Output Analysis:*** This technique records material inflows and balances this with the outflows on the basis that what comes in, must go out. For example, **ABC Metals Ltd. can analyse the lead smelting process that leads to extraction of pure lead.** The ***input output ratio*** at the blast furnace can be looked into as part of this analysis to find out wastes and inefficiencies, Workflow can then be modified to reduce wastage. By ***accounting for outputs*** both in terms of ***physical quantities*** and in ***monetary terms*** ABC Metals Ltd. can manage environmental costs better.
- ***Flow Cost Accounting:*** This technique uses not only material flows but also the organizational structure. Material flows are recorded as well as material losses incurred at various stages of production. Flow cost accounting makes material flows transparent by using various data, which are quantities (physical data), costs (monetary data) and values (quantities × costs). The material flows are divided into three categories -
  - **Material Values and Costs:** for the purposes of calculating the material values and costs, ABC Metal Ltd. needs detailed knowledge of the physical quantities of materials involved in the various flows and inventories. Based on these flow quantities and inventories, ABC Metals Ltd. can proceed to make valuations in terms of prices and thus obtain the material values of these flows and inventories. Material costs can then be determined by defining which material flows are cost relevant.
  - **System:** In-house costs incurred for maintaining material throughout example personnel costs or depreciation. ABC Metals Ltd. can analyse storage of raw materials, intermediary and final products and the costs involved in maintaining them. Just in Time material procurement, production based on confirmed orders can be considered to minimize storage costs.
  - **Delivery and Disposal:** Costs of material flows leaving the company, transport costs or cost of disposing waste. ABC Metals Ltd. can identify ways to optimize delivery and transport costs of its finished goods by decreasing the distance covered to transport goods, optimizing the truck load to deliver more using same delivery resources.

(f) Evaluation of the suggestions in final report of XYZ Consulting Group in the four areas of Environmental Cost Control:

The four areas of environmental cost control suggested by the consulting team are waste, water management, energy and consumables and raw materials.

Waste: ABC Metals Ltd. generates solid waste and harmful gases that pollute the air. They should ***monitor waste*** from operations in order to minimize impact on people and the environment. **"Mass Balance"** method can be used to determine how much material is wasted in production. The ***weight of material bought compared with the product yield*** can be understood. Reduction in waste saves costs. Waste generated should either be treated within the premises or disposed in environmentally safe method.

Water management: The production process of ABC Metals Ltd. generates toxic wastewater. ***Usage of water should be monitored so that consumption is reduced to an optimum level.*** Businesses pay for water twice – once to buy it and second to dispose it. The toxic wastewater may either be treated within the plant with technology that can possibly ***make the water reusable***. Else it should be disposed in an environmentally safe method.

Energy: Environment management accounts may help in ***identifying inefficiencies*** and ***wasteful practices***. These opportunities can yield cost savings. ***Using green energy*** like solar and wind energy, energy efficient machines, performing energy audits, avoiding idling of machines can help save energy costs.

Consumables and Raw Materials: These costs are ***direct costs*** that can be traced and monitored. Management has to review the entire lead smelting process to identify areas where ***materials can be used optimally, waste can be reduced***. Yield from extraction of lead from its ore should be highest with minimum wastage. The waste generated can be considered for ***recycling*** that helps in creating a sustainable environment.

Overall, EMA focuses on things such as the cost of energy and water and the disposal of waste and effluent. It is vital to note at this point that the focus of EMA is not all on purely financial costs. It includes consideration of matters such as the effect on the public image of the company from failure to comply with environmental regulations etc. must be taken into consideration.

☞

- Conceptually correct ***brief explanation*** is sufficient for each step.
- Alternate points and reasoning are also possible.

Question 2

SUNEET Automotives Limited (SAL) is engaged in the production and sale of premium segment bikes under the brand "Sunstar". It also manufactures related auto components including spare parts. The company operates a state of the art service network covering all parts of the country to take care of the after sale service and maintenance of bikes.

Based on the buying preferences and culture, the company categorizes its loyal customers into two categories: Good and Excellent.

Relevant details pertaining to sales are:

Category	***Periodicity of buying***	***Selling Price per Bike***	***Service / Maintenance Charges***
Good	*1 Bike for every 5 years*	*₹ 5,00,000*	*₹ 1,00,000 per bike*
Excellent	*7 Bikes as a whole from the date of his first buying*	*₹ 6,00,000*	*₹ 1,20,000 per year for all bikes*

Profit Margin:

	Good	*Excellent*
On Sale of each Bike	*25%*	*25%*
On Service/Maintenance Charges	*60%*	*65%*

Age analysis of customers undertaken by SAL reveals a general statistical estimate that, a person may become the first customer by buying a bike when he attains 20 years of age and remains riding the bikes until he reaches the age of 40 years and 3 months.

It is further observed that the "Good" category customers would not prefer waiting to purchase the bike beyond 5 years.

Required

(a) (i) CALCULATE the lifetime value of a 'Good customer' who is 20 years of age. ***(2 Marks)***

(ii) CALCULATE the lifetime value of an 'Excellent customer' who is 25 years of age. ***(2 Marks)***

(iii) Sunayna, holding an international management degree and the daughter of the Managing Director who has taken up the position of an Executive Director recently, came up with an idea of engaging a National Cricketing Icon to promote the bike. This brand endorsement should cost the company ₹ 10 Crores over a period of time. Sunayna, a conservative analyst by her nature, perceives that this brand endorsement is likely to turn 500 customers. who attain 30 years of age, and who are bound to be otherwise "Good" customers into "Excellent" customers.

ADVISE the management whether the brand endorsement programme is worth ₹ 10 Crores? ***(4 Marks)***

Notes:

(1) Ignore the Net Present Value of money and Tax implications.

(2) Assume that the service/maintenance charges would be incurred on the last day of the year.

(3) Show calculations in support of your answer.

(b) The purpose of a business is to create and keep a customer, and Customer Lifetime Value (CLV) is a prediction of "the net profit attributed to the future relationship with a customer".

In the light of this statement, RECOMMEND the steps to ascertain CLV of a particular customer. ***(4 Marks)***

(c) The whole concept of 'Customer Lifetime Value' revolves around four terms.

(1) Customer Selection;

(2) Customer Acquisition;

(3) Customer Retention and

(4) Customer Extension.

Briefly EXPLAIN these terms. ***(4 Marks)***

(d) Consider the different scenarios listed below and CATEGORIZE them to the most appropriate term of CLV as mentioned in sub-question (c) above. (You are required to mention the appropriate term only and don't need to explain)

(i) A company producing environmentally friendly products, sending e-mails to its customers to tell them how much less carbon dioxide they have produced by using the company product.

(ii) The Marketing Manager of a large MNC says that "the service, product and experience personalization are paramount now-a- days if you want customers to be happy and spend more on your business in the long run".

(iii) A Telecom company developed and added a Movie App that could attract its customer towards premium plan service from the basic plan.

(iv) A business looking to buy a website domain, would as a natural choice, likely be interested in web hosting and privacy protection services too.

(v) A company is keeping small list of popular products on the side bar of the web page. This allows its customers to see the most popular products when they are browsing the website.

(vi) The Marketing Manager cautions his team "don't overwhelm potential customers with too many choices. Otherwise, you run the risk of customers abandoning the cart".

(vii) SG Analytics team aggregated the customer and transaction data for the last 7-10 years of its rival company, SG Analytics then ranked all the customers based upon a weighted score calculated using 10 different metrics.

(viii) Mr. Charan, a Ph.D., aspirant and doing dissertation on the role of advertising says that- "To be successful in the twenty-first century, advertisers must find creative ways to transform customers into life-long purchasers and diehard advocates. The lifetime value of a loyal customer far exceeds any short-term buzz generated by a one-time promotion gimmick". ***(1/2 × 8 = 4 Marks)***

Answer

(a) Customer Lifetime Value

(i) Lifetime Value of "Good Customer" aged 20 years.

A customer aged 20 years **will buy 5 bikes** from Suneet Automotives Ltd. A new bike will be bought from the ages 20 years – 25 years, 25 years to 30 years, 30 years to 35 years, 35 years to 40 years and once more at 40 years driven up to an average age of 40 year 3 months.

Profit margin from the sale of 1 bike = 25% of ₹5,00,000 = ₹1,25,000 **per bike.**

Profit margin from service / maintenance charges of 1 bike = 60% of ₹1,00,000 = ₹60,000 per bike.

Total profit margin from sale of 1 bike = ₹1,25,000 + ₹60,000 = ₹1,85,000 **per bike**.

Total profit from sale of 5 bikes = ₹1,85,000 × 5 = ₹9,25,000.

Therefore, the lifetime value of "good customer" aged 20 years is **₹9,25,000**.

(ii) Lifetime Value of "Excellent Customer" aged 25 years.

Details		No. of Bikes Bought by Customer	Year	Lifetime value ₹
Profit Margin on Sale **per Bike**	6,00,000 × 25% = ₹1,50,000	7	---	₹10,50,000
Profit on Maintenance **per Year**	1,20,000 × 65% = ₹78,000	---	15*	₹11,70,000
Lifetime Value of Customer				**₹22,20,000**
** Given that the service/ maintenance charges would be incurred on the last day of the year. Therefore, no service charges for 3 months.*				

(iii) Brand endorsement decision involving outlay of ₹10 crore

A "good customer" aged 30 years would by **3 bikes** from Suneet Automatives Ltd. (30 years to 35 years, 35 years to 40 years and once more at 40 years driven up to an average of 40 year 3 months of age).

	Amount ₹ (Good)	Amount ₹ (Excellent)
Profit on Sale of Bike	1,25,000 × 3 = 3,75,000	1,50,000 × 7 = 10,50,000
Profit on Service	60,000 × 3 = 1,80,000	78,000 × 10 = 7,80,000
Total Profit	**₹5,55,000**	**₹18,30,000**
Incremental Benefit		**₹12,75,000**
Total Incremental Benefit Due to Brand Building (500 × ₹ 12,75,000)		**₹63,75,00,000**
Payment for Brand Endorsement		₹10,00,00,000
Total Net Incremental Benefit		**₹53,75,00,000**

Advise

Therefore, the management can consider the brand endorsement program as it yields an **incremental profit of ₹53.75 crores**.

Alternative Solution

(a) (i) Lifetime Value of "Good Customer" aged 20 years.

Details		No. of Bikes Bought by Customer	Lifetime value ₹
Profit Margin on Sale **per Bike**	5,00,000 × 25% = ₹1,25,000	4 +1 = 5	₹6,25,000

Profit on Maintenance **per Bike**	1,00,000 × 60% = ₹60,000	**4***	₹2,40,000
Lifetime Value of Customer			**₹8,65,000**
** Given that the service/ maintenance charges would be incurred on the last day of the year. Therefore, no service charges for 3 months (5th bike).*			

(ii) Lifetime Value of "Excellent Customer" aged 25 years.

Details		**No. of Bikes Bought by Customer**	**Year**	**Lifetime value ₹**
Profit Margin on Sale per Bike	6,00,000 × 25% = ₹ 1,50,000	7	---	₹10,50,000
Profit on Maintenance per Year	1,20,000 × 65% = ₹78,000	---	**15***	₹11,70,000
Lifetime Value of Customer				**₹ 22,20,000**
** Given that the service/ maintenance charges would be incurred on the last day of the year. Therefore, no service charges for 3 months.*				

(iii) Brand endorsement decision involving outlay of ₹10 crore.

	Amount ₹ (Good)	**Amount ₹ (Excellent)**
Profit on Sale of Bike	1,25,000 × 3 = ₹3,75,000	1,50,000×7 = ₹10,50,000
Profit on Service	60,000 × 2 = ₹1,20,000	78,000 × 10 = ₹7,80,000
Total Profit	**₹4,95,000**	**₹18,30,000**
Incremental Benefit on Excellent		**₹13,35,000**
Total Incremental Benefit Due to Brand Building (500 × ₹ 13,35,000)		**₹66,75,00,000**
Payment for Brand Endorsement		₹10,00,00,000
Total Net Incremental Benefit		₹56,75,00,000

Advise

Therefore, the management can consider the brand endorsement program as it yields an **incremental profit of ₹56.75 crores**.

☞

- Part (a) can also be solved with other alternative ways based on period of service/ maintenance or number of bikes sold (for example 7 bikes as a whole).

(b) Steps to ascertain the customer lifetime value of a particular customer.

Customer lifetime value is the present value of net profit that a firm derive from a customer over the entire lifetime of relationship with that particular customer. It is the net present value of the projected future cash flows from lifetime of customer relationship. It is an essential tool used in marketing to focus on more profitable customers and stop servicing non-profitable customers.

First of all, firm needs to ***ascertain the profits generated*** *from each customer*. Activity Based Costing (ABC) model helps in associating direct costs and revenues to a particular customer over a period of time to ascertain the profit margin from that particular customer. ***To ascertain lifetime value, judgements with regards to duration of relationships*** have to be made. **These require detailed analysis of the strengths of relationships, the likelihood, frequency and amount of repeated or additional purchases, competitive products, customer loyalty etc.** Thus, ***profit margins are then discounted*** at the firm's cost of **capital or any rate** that may be determined by the organization to arrive at the customer lifetime value.

(c) Explanation of concepts in customer lifetime value–

- **Customer Selection:** Type of customer which the ***company needs to target*** for its customer base. Determine the *type of customers needed*, ***their value*** and ***how can the company reach out*** *to them*?
- **Customer Acquisition:** A ***relationship needs to be developed*** with new customers. This can be done through ***off-line techniques*** *like advertising, direct mail etc*. ***Online techniques*** would be to use *search engine marketing, online PR, online partnerships, interactive adverts, opt-in-mails, viral marketing etc*.
- **Customer Retention**: ***Keeping existing customers***. The company needs to ***understand customer needs*** to cater to their *satisfaction*. *Reliability* and *responsiveness of service, assurance* and *empathy* are attributes that help retaining customers. *E-techniques* for retaining customers are personalization, mass customization, extranets, opt-in mails and online communities.
- **Customer Extension**: ***Products bought by the customers need to be increased***. This could be *reselling* similar products to previous sales. *Cross sell* closely related products or *up-sell* more expensive products.

(d) **(i)** Customer retention (assurance to environment conscious customers).
(ii) Customer retention (service and product personalization).
(iii) Customer extension (upselling a more expensive plan).
(iv) Customer extension (cross selling closely related products).
(v) Customer acquisition (using website to reach out to customers).
(vi) Customer selection (whom to target and determining how to reach out to them).
(vii) Customer selection (type of customer of rival company analysed to find out whom to target).
(viii) Customer retention (keeping existing customers converting them to lifelong purchasers).

Question 3

ABC Ltd. harvests, processes and roasts cocoa beans. The company has two divisions:

***Division A** is located in Country X. It harvests and processes cocoa beans. The processed cocoa beans are sold to Division B and external customers.*

***Division B** is located in Country Y. It roasts processed cocoa beans and then sells them to external customers.*

Both the countries X and Y use the same currency but have different Tax rates.

The budgeted information for the next year is as follows:

Division A

Capacity	*2,000 tonnes*
External demand for processed cocoa beans	*1,600 tonnos*
Demand from Division B for processed cocoa beans	*1,250 tonnes*
External market selling price for processed cocoa beans	*₹ 22,000 per tonne*
Variable costs	*₹ 14,000 per tonne*
Annual fixed costs	*₹ 60,00,000*

Division B

Sales of roasted cocoa beans	*1,000 tonnes*
Market selling price for roasted cocoa beans	*₹40,000 tonnes*

The production of one tonne of roasted cocoa beans requires an input of 1.25 tonnes of processed cocoa beans. The cost of roasting is ₹ 4,000 per tonne of input plus annual fixed costs of ₹ 40,00,000.

Transfer Pricing Policy of ABC Ltd.:

Division A must satisfy the demand from Division B for processed cocoa beans before selling any to external customers. The transfer price for the processed cocoa beans is variable cost plus 10% per tonne.

Taxation:

The rate of taxation on company profits is 45% in country X and 25% in country Y.

Required

(a) (i) PREPARE statements that show tile budgeted profit after tax for the next year for each of the two divisions. Your profit statements should show sales and costs split into external sides and internal transfers wherever appropriate. ***(5 Marks)***

(ii) DISCUSS the expected tax consequences of ABC's current transfer pricing policy.

(4 Marks)

(b) *PREPARE statements that show the budgeted contributions that would be earned by each of the two divisions if ABC' s head office changed its policy to state that transfers must be made at opportunity cost. Your statements should show sales and costs split into external sales and internal transfers wherever appropriate.* ***(4 Marks)***

(c) *DISCUSS TWO behavioral issues that could arise as a result of the head office of ABC Ltd. imposing transfer prices instead of allowing the divisional managers to set the prices.* ***(4 Marks)***

(d) *EVALUATE how taxation, import duty and dividend play role while determining International Transfer Pricing?* ***(3 Marks)***

Answer

(a) (i) Budgeted Information

Country X [Division A]		**Country Y [Division B]**	
Capacity (tn.)	2,000		
External Demand for Processed Cocoa Beans (tn.)	1,600	Sales of Roasted Cocoa Beans (tn.)	1,000
Demand from Division B for Processed Cocoa Beans (tn.)	1,250	Inputs from Division A for Processed Cocoa Beans (tn.)	1,250
External Market Selling Price for Processed Cocoa Beans (₹/ tn.)	22,000	Market Selling Price for Roasted Cocoa Beans (₹/ tn.)	40,000
Variable Costs (₹/ tn.)	14,000	Cost of Rosting (₹/ tn.)	4,000
Annual fixed costs (₹)	60,00,000	Annual fixed costs (₹)	40,00,000

Statement Showing Budgeted Profit After Tax

Country X [Division A]	**Internal Demand (₹)**	**External Demand (₹)**	**Total (₹)**
Internal Demand (1,250 tn. × ₹14,000 × 110%)	1,92,50,000	-	1,92,50,000
External Demand (750 tn. × ₹ 22,000)	-	1,65,00,000	1,65,00,000
Less: Variable Cost (2,000 tn. × ₹14,000)	1,75,00,000	1,05,00,000	2,80,00,000
Contribution	**17,50,000**	**60,00,000**	**77,50,000**
Less: Annual Fixed Costs (₹)			60,00,000
Profit Before Tax (₹)			**17,50,000**
Less: Tax @ 45%			7,87,500
Profit After Tax (₹)			**9,62,500**

Country Y [Division B]	Total (₹)
External Demand (1,000 tn. × ₹40,000)	4,00,00,000
Cost of Internal Transfer	1,92,50,000
Less: Variable Cost (1,250 tn. × ₹4,000)	50,00,000
Contribution	**1,57,50,000**
Less: Annual Fixed Costs (₹)	40,00,000
Profit (₹)	**1,17,50,000**
Less: Tax @ 25%	29,37,500
Profit After Tax (₹)	**88,12,500**

(ii) Discussion

Taxation, profit repatriation and transfer prices are critical considerations to the senior management of the multi-national companies. Multi-national organizations try to maximize profits by using transfer pricing as a ***tool to reduce the tax impact on earnings***. Where, the supplying division is in a country with higher tax rate, the transfer price will be set lower in-order **to reflect higher earnings** (resulting from lower purchase cost) in the *purchasing division*, which has a lower tax rate. This statement is clearly evident from the given problem.

Currently external sales are 1,600 tonnes. If Division A accepts to cater Division B's requirements *external sales have to be curtailed by 850 tonnes*. The sales mix would be external sales 750 tonnes and internal transfer 1,250 tonnes.

Therefore, Division A is going to divert 850 tonnes of production to Division B at ₹15,400 which is ***lower than the prevailing market price*** of ₹22,000. This would result in lower divisional earnings by **₹6,600** per tonne or in total by ₹56,10,000. Therefore, reduction in divisional tax liability amounting to ₹25,24,500/-

On the other hand, in these circumstances Division B's divisional earnings (on account of lower input cost) will be increased by similar amount i.e., ₹6,600 per tonne or in total by ₹56,10,000. Therefore, increase in divisional tax liability amounting to ₹14,02,500/-.

In nutshell, ABC would save of **₹11,22,000/-** ***(alternatively ₹ 16,50,000 on 1,250 tonnes)*** by reflecting higher earnings in the purchasing division which has lower tax. However, from a ***taxation perspective***, transfer price is to be analysed as to whether it is at an **"arms-length"** price. The taxation authorities may raise question whether this was at **arms-length, is it comparable with market terms for similar transactions**.

[₹**82,50,000** × 20% (tax difference) = ₹16,50,000] *Or*

[₹11,22,000 × 1,250/850= ₹16,50,000]

Alternatively

The inter-company transfer price for processed cocoa beans is equivalent to ₹15,400 per tonne. This is ***significantly below the market price*** for processed cocoa beans of ₹22,000 per tonne and the ***difference of ₹ 6,600 per tonne*** equates to ₹82,50,000 on the 1,250 tonnes transferred to Division B. Setting the transfer price at ₹15,400 compared to ₹22,000 has the effect of ***reducing profit before tax at Division A by ₹ 82,50,000 and increasing profit before tax at Division B by the same amount.***

This will be of particular interest to tax authorities as ABC is moving ₹82,50,000 of taxable profit from country X (where a tax rate of 45% is operation) to country Y (where a lower tax rate of 25% is in operation) by the use of their chosen transfer price for processed cocoa beans. Country X's ***tax authority would argue the transfer price of ₹ 15,400 does not represent an arm's length transaction as it is below ₹ 22,000 per tonne***, the **market price** for processed cocoa beans. The tax authorities in Country X may require that **an arm's length transfer price be introduced to ensure tax is not avoided in that country.**

(b) Statement Showing Budgeted Contribution

Country X [Division A]	Internal Demand (₹)	External Demand (₹)	Total (₹)
Internal Demand (400 tn.×₹14,000+850 tn.×₹22,000)	2,43,00,000	-	2,43,00,000
External Demand (750 tn. × ₹22,000)	-	1,65,00,000	1,65,00,000
Less: Variable Cost (2,000 tn. × ₹14,000)	1,75,00,000	1,05,00,000	2,80,00,000
Contribution	**68,00,000**	**60,00,000**	**1,28,00,000**

Country Y [Division B]	Total (₹)
External Demand (1,000 tn. × ₹22,000)	4,00,00,000
Cost of Internal Transfer	2,43,00,000
Less: Variable Cost (1,250 tn. × ₹4,000)	50,00,000
Contribution	**1,07,00,000**

(c) Discussion -The transfer price for the processed cocoa beans is variable cost plus +10% per tonne which is lower than the current market price. Division A's manager may regret and decline this as it would cause his/ her division's profit to decline, even though the company's interest would be best served by accepting marginal cost plus some markup.

Decentralisation recognizes that ***those closest to a job are the best equipped to say how it should be done*** and that people tend to perform to a higher standard if they are given responsibility.

Top management often imposes a transfer price in order to benefit from these synergies. Centrally imposed decisions are expected ***to make managers feel that they do not really have any authority*** and consequently that they cannot be held responsible for performance. ***They will therefore make less effort to perform well***.

On the other hand, Top management has formed a decentralised organisation structure for ABC and employed managers due to management believed in the beliefs of decentralised decision making. It is worthwhile to note that the ***benefits of decentralised decision making are crucial to protect***, even if it involves an occasional dysfunctional decision.

Alternatively

Two issues that could arise by the imposition of a transfer pricing policy on divisional managers are:

1. One of the purposes of decentralization is to allow manager to exercise greater autonomy. There is little point in granting autonomy and then imposing transfer prices. Such imposition may make **the *managers feel that they are deemed to be incompetent and consequently undermine their confidence*.**
2. If the performance measure for the divisional managers is based on the profits of their respective divisions, it is essential that the transfer pricing policy allows an equitable portrayal of the performance of each division to be presented. Managers should be held responsible for what they can control; ***they should not be held responsible for profit or losses generated by an imposed transfer price***. One way to overcome this problem is to use dual prices.

(d) **Taxation-** The transfer price may conflict with the price which is used to determine profit tax assessment. This conflict may arise when the supplying and receiving branches/subsidiaries are located in different countries with different tax rates. In such case profits may be transfer to branches/subsidiaries which operates in the low taxation country.

Import Duty- International transfer pricing will have an impact on import duties also. Import duties can be minimized by transferring products at lower prices to the branch/subsidiary with high import duties. So, import duties may be lower on account of lower prices.

Dividend- Some countries restrict the repatriation of dividends. In such case the product should be transferred at higher prices to the branch/subsidiary located in country operating with these restrictions so that more profit can be repatriated without violating the dividend restrictions.

Question 4

(a) Bell Engineering, located in Yanam contemplating the introduction of cost reduction measures, is tilting towards introduction of Kaizen costing in the organization. As someone who is having an expert awareness on management accounting, you have been asked to suggest the management on this move. Some of your colleagues are questioning the management about the differences between the Standard Costing and Kaizen Costing and there is not much of the difference between Kaizen and Value Engineering, Business Process Re-engineering (BPR) as well.

You are required to:

DISCUSS any five differences between Standard costing and Kaizen costing as a reply to the colleagues. ***(5 Marks)***

(b) *B Ltd. is considering expansion. Fixed costs amount to ₹ 4,20,000 and are expected to increase by ₹ 1,25,000 when plant expansion is completed. The present production capacity is 80,000 units per year. Capacity will increase by 50% with the expansion. Variable costs are currently ₹ 6.80 per unit and are expected to go down by ₹ 0.40 per unit with the expansion. The current selling price is ₹ 16 per unit and is expected to remain same under either alternative. What are the break even points under either alternative? RECOMMEND the better alternative with reason.* ***(5 Marks)***

OR

ANALYSE any five factors contributing for a low customer's price sensitivity. ***(5 Marks)***

(c) (i) *Lifeline Limited provides you the following financial information as on 31st March, 2021.*

	(₹ in Lakhs)
Share Capital	*440*
Reserves and Surplus	*630*
Long term Debt	*60*
Trade Payables	*15*

Additional information is as follows:

- *Profit before interest and tax is ₹ 1,100 Lakhs*
- *Interest paid ₹ 6.8 Lakhs*
- *Tax rate is 30%*
- *Cost of equity 12% and Cost of debt 6%*

You are required to CALCULATE Economic Value Added of Lifeline Limited. ***(4 Marks)***

(ii) *Lifeline Limited now wants to use the technique of 'Shareholder Value Added' (SVA) for value measurement. DISCUSS briefly the concept of Shareholder Value Added (SVA).* ***(2 Marks)***

(iii) *RECOMMEND the value drivers that affect shareholder value.* ***(4 Marks)***

Answer

(a) <u>Discussion</u> on Comparing Traditional Cost Reduction to Kaizen Costing

The kaizen costing system is a ***quite different*** from a standard costing system in which the typical goal is to meet the cost standard while avoiding adverse variances.

In kaizen costing, the goal is to attain ***cost reduction*** targets that are ***continually altered/ modified downward***. Variance analysis under a standard cost system generally compares actual to standard costs. In the kaizen costing system, variance analysis ***compares the target costs with actual cost reduction amounts***.

Kaizen costing may be more helpful for performance measurement than traditional standard costing in a firm that has to ***compete internationally*****.** This is because when competition is intense, firms need to improve all the time to succeed and stay competitive.

Small improvements may require changes in ways of operating so that ***standard procedures have to be modified***. Whereas Standard costing concentrates on existing procedures, Kaizen costing identifies that improvement may need changes in procedures and that methods of operating should not become fixed.

Another key argument between standard and kaizen costing has to do with the assumptions about who has the best understanding to improve process and reduce costs. Traditional standard costing assumes that managers understand best since they have the technical knowledge and can determine processes that workers are required to perform according to present standards and procedures. Under Kaizen Costing, ***workers are assumed to have superior knowledge*** about how to improve processes as they actually work with manufacturing process to produce products. Therefore, another central goal of kaizen costing is ***to give workers the responsibility and control*** to improve process and reduce costs.

** Bold indicates for Kaizen Costing*

(b) <u>Recommendation</u> for Better Alternative

Computation of BEP under two alternatives

Items	Currently ₹	After the expansion ₹
Capacity	80,000 units	1,20,000 units
Selling price per unit	16	16
Less: Variable Cost per unit	6.80	6.40
Contribution Margin per unit	9.20	9.60
Fixed Costs	4,20,000	5,45,000
BEP	$\frac{4,20,000}{9.20}$ = **45,652 unit**	$\frac{5,45,000}{9.60}$ = **56,771 units**

The importance of p/v ratio lies in its use for evaluating the profitability of alternative products, proposals, or schemes. Management should, therefore, try to increase p/v ratio by widening the gap between the selling price and the variable costs. This can be achieved by increasing sale price, reducing variable costs or switching over to more profitable products. In the expansion alternative, p/v ratio is higher than the existing p/v ratio of 57.5% on account of change in variable cost. Therefore, expansion alternative seems better.

It also meaningful to consider the change in fixed costs also. It is true that an increase of fixed costs becomes a burden to operations when sales volumes are not expanding. However, when sales are increasing, profit can be expanded by increasing more fixed costs. Therefore, assuming that the whole production can be sold, the profit under-

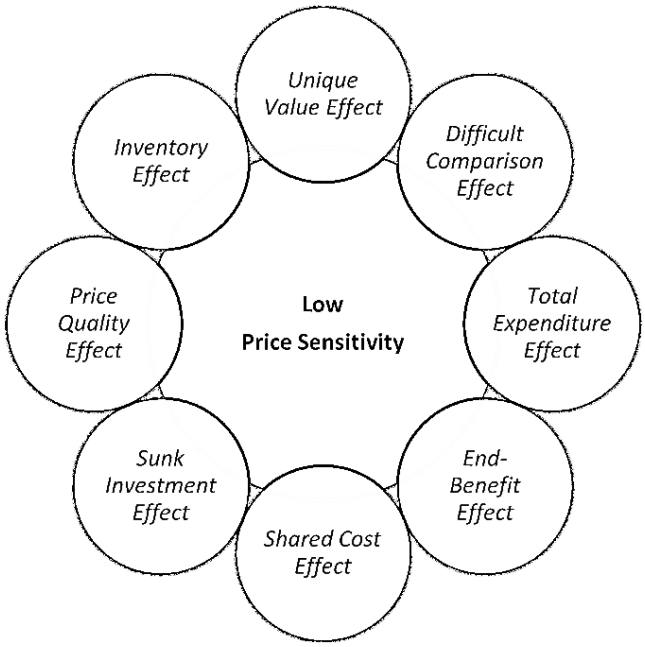
Items	Currently ₹	After the expansion ₹
Capacity	80,000 units	1,20,000 units
Sales	12,80,000	19,20,000
Less: Variable Cost	5,44,000	7,68,000
Contribution Margin	7,36,000	11,52,000
Less: Fixed Costs	4,20,000	5,45,000
Profit	**3,16,000**	**6,07,000**

Recommendation

It is obvious from the above calculations that the profits will be almost double after the expansion. Hence, the alternative of expansion is to be preferred.

Or

Analysis of Factors contributing for a low customer's price sensitivity:



Analysis

- ***Unique Value Effect***- More unique the product, lower is the price sensitivity.
- ***Difficult Comparison Effect***- Price sensitivity will be low if the buyer has difficulty comparing two alternatives.
- ***Total Expenditure Effect***- If then expenditure on the product represents a low proportion of the consumer income, the price sensitivity will be less visible for such a product.

- ***End- Benefit Effect***- Buyers are less price sensitive where the expenditure on the product is low compared to the total cost of the end product.
- ***Shared Cost Effect***- If the cost of the product is shared by another party, the buyer will have less prone to price sensitivity.
- ***Sunk Investment Effect***- Price sensitivity is low in products which are used along with assets previously bought.
- ***Price Quality Effect***- Higher the perceived quality of the product, lower the price sensitivity.
- ***Inventory Effect***- If the product cannot be stored, the buyer will be less price sensitive.

(c) (i) EVA = NOPAT – WACC × Capital Employed

Capital Employed

= ₹440.00 L + ₹630.00 L + ₹60.00 L

= ₹1,130.00 L

WACC = $\left(\frac{440.00+630.00}{1,130.00}\right)\times 12.00\% + \left(\frac{60.00}{1,130.00}\right)\times 6.00\%$ = **11.68%**

NOPAT = [PBIT- Interest - Tax] + Interest (net of tax)

	₹ in lakhs
PBIT	1,100.00
Less: Interest	(6.80)
PBT	**1,093.20**
Less: Tax @ 30%	(327.96)
PAT	765.24
Add: Interest (net of tax) [6.8 × (1 - 0.30)]	4.76
NOPAT	**770.00**

EVA = NOPAT – WACC × Capital Employed

= ₹770.00 L– 11.68% × ₹1,130.00 L = **₹638.02 L**

☞

This part can also be solved by considering Cost of Debt 6% as Gross.

(ii) A variation along the same concept as EVA. The main aim of the organisation is to add value to shareholder wealth.

In 1980's Alfred Rappaport proposed a technique for value measurement. This approach is called Shareholder Value Analysis. SVA focuses *less on process* than Porter's and acts more as a final gateway in decision making, although it can be used at multiple levels within a firm, SVA is described as -

The process of analyzing how decisions affect the net present value of cash to shareholders. The analysis measures a company's ability to earn more than its total cost of capital…With in business units, SVA measures the value the unit has created by analyzing cash flows over time. At the corporate level, SVA provides framework for evaluating options for improving shareholder value by determining the trade-offs between reinvesting in existing businesses, investing in new businesses and returning cash to stockholders. (Rappaport, 1986, 1998).

(iii) Rappaport suggested that future cash flows should be discounted at a suitable cost of capital and that shareholder value would be increased if this measure were to increase. According to Rappaport, the following seven factors- he calls them **"value driver"**- affect shareholder value:

- Rate of Sales Growth
- Operating Profit Margin
- Income Tax Rate
- Investment in Working Capital
- Fixed Capital Investment
- Cost of Capital
- Life of the Project

The first five value drivers can be used to calculate the free cash flow for each year throughout the life of the project. These are then discounted at the company's cost of capital.

It is important to remember that value is not just a financial concept. Shareholders can attach ***non-financial value*, e.g., social responsibility** of the company.

Question 5

(a) Sakara Ltd., manufactures spare parts. For production it uses many machines. It supplies the following information pertaining to one of the vital machines used by it for the month September, 2021.

Total production in that month 3,000 units.

No. of units accepted out of the above production 2,860 units.

Std. time for actual production 200 hrs.

Actual time worked during the month 240 hrs.

Time lost during the month 35 hrs.

Required

(i) *IDENTIFY a suitable approach to measure the total productive maintenance performance of the machine.* ***(1 Mark)***

(ii) *LIST the losses to be identified to measure the maintenance performance.* ***(2 Marks)***

(iii) *CALCULATE the total productive maintenance performance of the machine under the identified approach in (i) above.* ***(4 Marks)***

(iv) *EVALUATE the effectiveness of the maintenance of the machine if the World Class Index is more than 85%.* ***(3 Marks)***

(b) *TAX ADVISER ASSOCIATION (TAA) is a not-for-profit organisation with the objective of skill development of professional is in the area of Accounts. Taxation and Management. TAA believes that there is a great demand of persons with perfect skill for handling the affairs of not-for-profit organisations like itself, which may be engaged in similar other charitable objects like health care, education, community development etc.*

TAA recognises the need of Strategic Management of entities in the not-for-profit sector, so that the true purpose of committing funds to such charitable objects, is effectively achieved. Funds may be obtained from donors, subscribers, surplus from internal activities of the not- for-profit entities, etc.

TAA also recognises that the underlying objective of these not for- profit entities is not to earn profits and distribute dividends to the members. Hence, the performance evaluation using Financial Measures like Profitability, Return on Net Assets, Economic Value Added, Residual Income, etc. are not relevant, since the objective of Shareholder's Wealth Maximisation is not relevant. In spite of that the management of TAA wants to know the need for performance measurement of not-for-profit entities and the scope for the same.

Hence, the management raises the following issues to get your expertise input.

You are required to:

(i) *EXPLAIN the objects of not-for-profit entities.* ***(1 Mark)***

(ii) *DESCRIBE in brief the reasons why Performance Measurement is required for not-for-profit entities.* ***(1 Mark)***

(iii) *LIST the challenges in Performance Measurements of not-for-profit entities.* ***(3 Marks)***

(iv) *ANALYSE the Value for Money (VFM) framework for Performance Measurement of not-for-profit entities.* ***(2 Marks)***

(v) *EXPLAIN how the Adapted Balance scorecard Approach can he applied for not-for-profit entities.* ***(3 Marks)***

Answer

(a) (i) The most important approach to the measurement of TPM performance is known as Overall Equipment Effectiveness (OEE) measure.

(ii) The calculation of OEE measure requires the identification of "six big losses"

1. Equipment Failure/ Breakdown, 2. Set-up/ Adjustments, 3. Idling and Minor Stoppages, 4. Reduced Speed, 5. Reduced Yield and 6.Quality Defects and Rework.

The first two losses refer to time losses and are used to calculate the availability of equipment. The third and fourth losses are speed losses that determine performance efficiency of equipment. The last two losses are regarded as quality losses

(iii) **Availability Ratio** *per shift* $= \left\{\frac{240 \text{ hrs.}}{240 \text{ hrs.}+35 \text{ hrs.}}\right\} \times 100$

$= \mathbf{87.27\ \%}$

Performance Ratio $= \left\{\frac{200 \text{ hrs.}}{240 \text{ hrs.}}\right\} \times 100$

$= \mathbf{83.33\%}$

Quality Ratio $= \left\{\frac{2{,}860 \text{ units}}{3{,}000 \text{ units}}\right\} \times 100$

$= \mathbf{95.33\%}$

Thus, **OEE** $= 0.8727 \times 0.8333 \times 0.9533$

$= \mathbf{69.33\%}$

(iv) Evaluation

Nakajima presents the following the ideal conditions for OEE→ ***Availability*** is greater than 90%, ***Performance*** is greater than 95% and ***Quality*** is greater than 99%. This equals to OEE of 85% (0.90 × 0.95 × 0.99). Which is commonly referred to as World Class Level, however, OEE level (somewhere around 69%) lower than this. It obviously means that company got some opportunities for improvement. Company may improve OEE by collecting information related to all downtime and losses on equipment, analysing such information through graphs and charts, making improvement decisions thereon like autonomous maintenance, preventive maintenance, reduction in set up time etc. and implementing the same.

However, it is also important to note that OEE score ***depends upon*** *varying processes, industries, equipment,* and *operational circumstances*. Some equipment do not even have the possibility of running with an OEE as 85% due to various limitations factors in, for example, product layout and high mix production causing in losses in setup etc.

Moreover, in reference to determining something as being world class only by a certain level, ***stability*** has been recognized as one form of World Class and means that if an equipment can be run with a stable OEE day after day, it is first step in being world class, irrespective of whatever level. This issue can, as many others, be *eliminated with training* and *awareness*. Also, instead of management looking for a certain OEE result, they should think for stability first, and then a constant increase of the OEE results (if needed).

Overall, a *holistic approach* is required for evaluation of the effectiveness of the maintenance of the machine while comparing world class performance.

(b) (i) Not-for-profit entities are established for purpose of charitable, welfare, social, environmental, and mutual co-operations and *perform non-economic activities* largely as a principal operation

(ii) Despite the fact that the not-for-profit organisation need not to earn a profit, but it doesn't free them from *fiduciary responsibility towards the contributor of funds*. **They are responsible to provide reasonable assurance to the contributor of fund that the fund is applied for the advancement of the stated purpose**, and up to which scale such purpose is attained.

So, *in order to establish a measurable link between resources spent and purpose attained*, the performance of not-for-profit organisation (and the decision taken thereat) need to be measured.

(iii) The performance measurement in not-for-profit organisations is subject to certain challenges. The key challenges are–

1. It is *difficult to quantify the benefit* derived from the activities of these organisations in the scale of money, especially due to the nature and timing of benefits. Similarly, all the *costs can't be measured* in monetary terms.
2. Performance of not-for-profit organisations largely depends upon performance and the *commitment of state*.
3. A not-for profit organisation may have *multiple objectives* to be achieved and there may be *exiting or potential conflict among them*.
4. Not-for-profit organisation finds it *difficult to measure the utility of funds expended*.

(iv) Value for money incorporates three elements: economy (reducing input costs), efficiency (getting more output for the same or less input) and effectiveness (getting better at achieving objectives). In other words, value for money is defined as the achievement of **economy, efficiency and effectiveness** in the acquisition and use of resources to meet objectives.

Analysis

In the TAA context, effectiveness is closely linked to the quality of research, training, learning and other outcomes as well as their supporting processes. A measure of ***effectiveness*** is whether the TAA has been able to provide **quality training to the desired number of professionals**. The performance of the TAA can also be measured using the metrics of **the professionals who have successfully completed the skill development training and joined profession (started work)**.

In the TAA context, efficiency combines a broad range of activities that support day-to-day operations. A measure of ***efficiency*** could be **the number of professionals trained per hour spent by trainer or the professionals to trainer ratio**.

A measure of an ***economy*** would be **the amount spent on maintaining the association premises, the amount spent on remuneration to trainers, etc. The amount spent can be compared to the budgeted expenditure or sanction amount**.

If performance is measured based on the cost incurred, the TAA might as well decide to cut necessary expenditure to meet the expenditure budget. For example, the TAA might not spend an adequate amount to upkeep the library or computer equipment, such measures are not necessarily effective as they could disrupt achievement of the TAA's goals. Hence, it is important to ***balance financial measures with non-financial measures.***

(v) Kaplan developed the 'Adapted Balance Scorecard' for measuring the performance of not-for-profit entities. The four perspectives suggested by adapted balanced scorecard are **exactly the same** as suggested in Balanced Scorecard earlier by Kaplan along with Norton.

What make Adapted Balanced Scorecard different from Balanced Scorecard → it is the ***assumption of the framework***, the premises of each perspective. The main assumption is that "***mission statement" is central point to attain, rather profit***.

Perspective	Focus
Customer Perspective ↑	Satisfaction of beneficiary, Market Growth, and other stakeholder's interest
Financial Perspective ↓	Fund raising, Funds growth, and Funds distribution
Internal Processes Perspective	Internal efficiency, Volunteer development, Information communication, and Quality
Innovation and Learning Perspective	The capability of organisation to adjust to the changing environment and Innovative changes

It is important to note that the ***positioning of financial perspective and customer perspective is switched***. This is due to the fact that achieving financial success is not the primary objective for these organisations. Instead, nonprofit organisations should be primarily concerned with how efficiently and effectively they meet the needs of their beneficiaries and contributories/ members.

Question 6

(a) XYZ Ltd., is engaging in the production of three joint products X, Y and Z. Product Z has a realizable value of ₹ 42 p.u., if it is processed further after the point of separation. Otherwise Z has no saleable value.

The costs attributable to Z upto the point of separation is ₹70 p.u. (variable ₹40 and fixed ₹30). To process Z further, after the point of separation, the cost to he incurred p.u. is ₹ 30 (variable ₹20 and fixed ₹10). Before taking a decision on further processing of Z and on some other issues the company seeks your advice. The issues are:

Required

(i) ADVISE whether the joint product Z should be processed further or not.

(ii) If product Z is not a joint product what is your ADVISE regarding the further processing of Z.

(iii) LIST the situations in which minimum pricing approach is followed by an organization.

(iv) ANALYSE how "Keep or drop" operating decisions are taken in a normal situation.

(10 Marks)

(b) K Ltd. had a profit plan approved for selling 5,000 units per month at an average price of ₹10 per unit. The budgeted variable cost of production was ₹4 per unit and the fixed costs were budgeted at ₹ 20,000 and the planned income being ₹ 10,000 per month. Due to shortage of raw materials, only 4,000 units could be produced and the cost of production increased by 50 paise per unit. The selling price was raised by ₹ 1 per unit. In order to improve the production process, an expenditure of ₹ 1,000 was incurred for research and development activities.

You are required to PREPARE a performance budget and a summary report for the month by incorporating the planned income, actual income and variances. ***(10 Mark)***

Answer

(a) (i) When Z is a joint product, its ***cost up to the point of separation is irrelevant for decision making***. Since joint products are the result of same raw material and same process operations. But cost incurred for Z after the point of separation should be considered. Accordingly, saleable value of one unit of Z is ₹42 and total cost after separation is ₹30 per unit. This will contribute **₹12** per unit towards joint product cost. Hence, **further processing of Z is advisable**.

(ii) If Z is not a joint product, decision should be taken based on total variable cost and saleable value. In this case, saleable value per unit is ₹42 and total variable cost is ₹60 (₹40 + ₹20) leading to a negative contribution of **₹18** per unit. Hence, **further processing of Z is not advisable**.

(iii) List of situations for minimum pricing approach

The minimum pricing approach is a useful method in situations where→

- there is a lot of intense competition,
- surplus production capacity,

- clearance of old inventories,
- getting special orders and/or
- improving market share of the product.

The minimum price should be set at the incremental costs of manufacturing, plus opportunity costs (if any).

For this type of pricing, the selling price is the lowest price that a company may sell its product at usually the price will be the *total relevant costs of manufacturing*.

(iv) "Keep or Drop" Decision

Operating decision that management must make is whether to keep or drop unprofitable segments, such as product lines, services, divisions, departments, stores, or outlets. The decision is based on whether or not the segment's revenue exceeds the costs directly traceable to the segment, **including any direct fixed costs**.

Analysis - Keep or Drop?

- *If incremental cost savings > incremental revenue lost*, the segment **should be dropped**, unless qualitative characteristics fiercely impact the decision.
- *If incremental revenue lost = incremental cost savings*, qualitative effects must be used to make the decision.
- *If incremental cost savings < incremental revenue lost*, the segment **should not be dropped**, unless qualitative characteristics fiercely impact the decision.

(b)

K Ltd.

Performance Budget

	Original Plan (₹)	**Adjusted Plan (₹)**	**Actual Position (₹)**
Sales Revenue	**50,000**	**40,000**	**44,000**
Less: Variable Cost	20,000	16,000	18,000
Contribution	**30,000**	**24,000**	**26,000**
Less: Fixed Cost	20,000	20,000	21,000
Net Income	**10,000**	**4,000**	**5,000**

Summary Report

Planned Income		10,000
Sales Price Variance [4,000 × (₹11 – ₹10)]	**= 4,000 (F)**	
Sales Contribution Volume Variance [1,000 × ₹ 6*] *₹30,000/ 5,000 = ₹6	**= 6,000 (A)**	
Variable Cost Variance [4,000 × (₹4 – ₹4.50)]	**= 2,000 (A)**	
Fixed Cost (Expenditure) Variance [₹21,000 – ₹20,000]	**= 1,000 (A)**	5,000(A)
Actual Income		5,000