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CA FINAL – SCM&PE
VOLUME – IV (Version 4)
PRACTICE MANUAL – Ch. 8 to 13

(Notes for Private Circulation only)

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Gold Medalist in Cost & Management Accounting

About CA Rakesh Agrawal

- He passed his B. Com examination from Ness Wadia College of Commerce, Pune in 1989 with distinction.
- He was the Captain of his college Chess Team.
- He was adjudged as the Best Mountaineer of the College for 1988 – 89 year.
- He received the Gold Medal from University of Pune in the Special subject of Cost & Management Accountancy at B. Com level.
- He passed his M. Com. Exam also from University of Pune (external), with the specialization in Advanced Cost & Management Accounting. Of course, he again cleared this exam with distinction.
- He cleared his ICWA examination in the first attempt in December, 1990 and stood Third in the Pune Chapter of Cost Accountants.
- He started teaching the subject of Costing at Pune Chapter of Cost Accountants in the year 1991, as a visiting faculty.
- He completed his CA Final examination in November 1992 attempt with 32nd Rank in All India Merit.
- He has cleared Information Systems Auditor (ISA) exam of ICAI in the very first attempt.
- He has passed State Eligibility Test (SET) in Commerce in the very first attempt.
- He has also passed the Mutual Fund exam and Derivatives Core Module, conducted by National Stock Exchange.
- He is the Founder of Vidarbha Professional Academy (1996), Nagpur.
- He has launched a free mobile app titled as "Costing Dictionary by CA Rakesh Agrawal". You may download it from Google Playstore.
- He has an online store **www.carakeshagrawal.in** for e-commerce. Students can buy video lectures from this website and study anytime anywhere.
- He is a Teacher by Passion and Chartered Accountant by Profession.
- He is well known for Conceptual Coaching and Student Friendly nature. At the same time he maintains classroom discipline.
- He teaches you a subject for your life time. He also tries to co-relate the subject with day to day life.
- He believes that "Education is not merely getting a Degree, but it is gaining Knowledge".
- He enjoys teaching and he wants all of you to enjoy learning the subject also.

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Preface to Practice Manual

Dear Student Friends,

First of all, I would like to thank you for your overwhelming response to the subject of Strategic Cost Management & Performance Evaluation. Many students attended the live or virtual batches of this subject and many more studied this subject through video lectures.

Change is the only Constant in this World. With every passing attempt (i.e. CA Exam), some more questions on the subject gets added in our notes through RTP, Mock Test, ICAI Website and Exam papers. This increases the size of classroom notes as well as teaching duration.

Students expect the faculty to cover everything at one place but that too in lesser duration. It is indeed a difficult task to handle. To cover everything but without increasing classroom duration gave me an idea to come out with Practice Manual.

I have decided to shift all the homework questions and extra questions released by ICAI, in this Practice Manual for the benefit of students. Practice Manual will help you to remain updated and at the same time, it will provide you an opportunity to test yourself at home. Solving the questions independently and then checking it with the given solution should help you to boost your confidence.

Due to increase in number of pages, this Practice Manual is now splitted in two parts : (a) Volume 3 – Covering chapters 1 to 7 and (b) Volume 4 – Covering chapters 8 to 13. This Practice Manual is updated up to RTP for May 2021 exam. It also covers the revised module released by ICAI in Nov. 2020. For subsequent changes and amendments, you may always visit our website www.carakeshagrawal.in. You will find the free downloadable files under the tab 'Students Corner'. This is the only way to update yourself up to your exam attempt. Because, there will always be a gap between attending the lectures and appearing for the actual exam.

One thing I can assure you, that is - After covering our Regular Classroom Notes, Practice Manual and updations from our website or ICAI website, there is nothing left to be covered for this subject of SCM&PE. You don't have to refer multiple books or literature.

Best of Luck and Happy Learning !

CA Rakesh Agrawal

8 PERFORMANCE MEASUREMENT AND EVALUATION

Triple Bottom Line (TBL)

Question 1 : Case Study [ICAI Website]

PAPER SOLUTIONS LTD. (PSL) is a paper mill producing excellent quality writing and printing paper. It is located in a small town where eucalyptus, acacia and casuarina trees grow in plenty, which are required in the paper production process. It sources its raw material from pulp-wood plantations that grow in the above areas. These plantations are located in degraded agrarian land surrounding the factory site, which was previously wasteland. Their owners are subsistence farmers, who have been encouraged to grow these trees to source raw material for the paper mill. The mill's local procurement policy has thus provided a source of livelihood for this community. Moreover, almost 40% of the staff working at the mill are from the local community. Most of the mill's labour force lives in residential areas near the factory site. Catering to the mill employees' livelihood needs like food, clothing, education etc. has given the town, an alternate source of income and thus has benefited the town. The plant managers at the mill have been working on various projects in order to build a sustainable business. This includes, reducing waste during the manufacturing process, imparting knowledge to local farmers at the pulp-wood plantations to improve the quality of wood through breeding and seed improvement techniques. Operations at the mill have yielded substantial profits over the last 15 years since inception.

You are the chief accounting officer of PSL taking care of all the reporting (internal and external) needs of the company. Recently, you read about the Triple Bottom Line (TBL) reporting that many other companies are following. You feel the need to introduce TBL reporting because:

The vital role played by the mill towards the development of the town. This can be highlighted in the TBL report. This will enhance the company's goodwill. At the same time, you feel the need for transparency of operations and balancing the need of various stakeholders involved. All this can be addressed by publishing the TBL report periodically.

The mill's operations are driven by the resources available in the environment. What the mill takes should be returned in equal if not in a higher measure. TBL reporting can help identify opportunities of giving back to the environment.

You have an appointment with the Chief Executive Officer to discuss this reporting framework. During a preliminary discussion, the CEO was skeptical of the need for additional reporting. He says, *"We are here to do business, profit should be the sole parameter for measuring our success. Shareholders are our only stakeholders. Annual reports would provide sufficient information to others who are interested in our operations."*

Required :

To convince the CEO, you need to bring out the difference between traditional accounting framework and the triple bottom line framework. Draft an e-mail on this subject that you need to send to the CEO for discussion at the meeting.

Solution 1 :

To: CEO
From: Chief Accounting Officer
Date: 22/06/20XX
Subject: Traditional Accounting Framework v/s Triple Bottom Line Framework
Please find below a comprehensive study on both frameworks in the context of PSL.
Best Regards,
Chief Accounting Officer

----------Attachment----------

Difference between traditional accounting framework and triple bottom line framework.

(i) Traditional accounting framework has a "single bottom line" that focuses on the profit that our company has made during the financial year. This is calculated by reducing costs, including the cost of capital, from revenues earned during the period, to arrive at the net profit that is available to the shareholders. This reporting framework has its focus on meeting the informational needs of mainly one category of stakeholder within the company, namely its shareholders. It satisfies the information needs of those interested in the financial aspects of business. However, it does not provide much insight on the social, environmental and economical implications of its operations.

Albeit, some information about its operations is available in various parts of its annual report, like the management discussion and analysis section or the chairman's letter to shareholders. However, this is generally not sufficient to satisfy the information needs of other stakeholders, some of whom can be our company's employees, customers, suppliers, communities living near our factory site or even the government. Transactions that do not directly impact our company are ignored. Recognition of an expense partly depends on utilization of assets. For example, costs incurred to operate machines used in the pulping process would include labor expense, repairs, depreciation, utility etc. These get captured as part of cost of goods manufactured in our financial reports. Therefore, assets and their related expense, that are owned and within the control of the company will be reported in the financial reports.

However, certain assets are neither owned nor controlled by the organization, yet it utilizes these resources in its operations. For example, the waste water from our company is discharged in the river nearby. The waste water contains solids, chemicals and metal compounds that were used during production. This pollutes the river water, which is the primary source of water for our town. This poses both an environmental and health risk to the citizens. Although we have taken sustainability initiatives to reduce this waste, we do not pay to clean up the river water. It is the government that undertakes the onerous task of cleaning up the river water and also bears the clean-up cost. This aspect of our company's operations and the associated cost will not get captured in our financial reports. Hence, the true cost of operations of our company is greater than the costs reported in the financial reports. Moreover, the market price that we charge our customer for our paper product does not factor this cost. Consequently, both our company and our customers who use our product end up under-pricing the cost to the environment and society.

It can be concluded that under traditional financial reporting, sustainability and our company's performance are mutually exclusive. At the same time, information about sustainability is extremely important to other stakeholders like the community living next to the factory site since it affects their lifestyle, the local government that may be incurring substantial expense to nurture back the environment or environmentalists that seek to protect the habitat of other species. It might be critical for our company. Healthy environment and society are key drivers to sustain our operations. "Can we do business in a world fraught with sickness due to pollution?"

On the other hand, triple bottom line reporting framework focuses on a more broader view of the company addressing the interests of various other stakeholders. These stakeholders could be our company's employees, creditors, customers, communities near the factory site, government etc. The objective is to force ourselves to identify areas within our operations to create sustainable initiatives that would, in the long run, be beneficial to its current and future stakeholders as well as to our company itself. It focuses on the impact of the decisions and operations of our company on the Society, Environment, and Economy and hence the name "triple bottom line". Triple bottom line goes beyond the financial aspects of an organization's performance. This helps stakeholders make more informed assessments of the opportunities and risks that the company faces.

(ii) Traditional accounting framework uses the reporting currency as the unit of measurement. It follows the accounting and reporting principles generally accepted in the country it operates.

Materiality under this framework, is measured in monetary terms, that could impact the decisions of a rational investor. On the other hand, there is no uniform standard or measure for the TBL framework. Measurement of an aspect, therefore its materiality, could either be financial or non-financial. Organizations could follow the metrics suggested in the Global Reporting Initiative (GRI) framework. In India, efforts are underway to align the GRI with the Business Responsibility Report (BRR) mandated by SEBI for some of the public companies. The TBL report focuses on both the positive and negative impact of the organization's performance on the society, environment and economy. TBL reporting may be (i) core reporting i.e. reporting selective metrics or (ii) comprehensive reporting i.e. a detailed report based on the GRI standards.

In summary, while financial reports provide information about the profitability of our company, TBL enhances the information available to various stakeholders who may hold different perspectives of the company's business operations. TBL will work well to supplement information in the financial statements.

Overall business strategy should be linked to the TBL reporting to work towards a sustainable future. Our company has already been working on sustainability initiatives. Waste generation is being tackled by our plant managers. Metrics for this report has to come from various departments. Awareness about sustainability and its impact may open up opportunities that are currently being overlooked. Our company has been a lifeline for this town for the past 15 years. Why not use the TBL to highlight these positive aspects and garner goodwill for our company? TBL reporting need not remain another administrative task requiring just data gathering. It might vitalize our company to achieve greater heights of success.

Balanced Score Card

Question 2 : [RTP - May 2018]

Case Scenario

Apana Bank Ltd., was established on the 30th September, 1940 under the provisions of Cooperative Societies Act by the eminent professionals to encourage self-help, thrift, and cooperation among members. Bank was issued Banking License under Banking Regulation Act, 1949 on October 25, 1986 to carry out the Banking Business within the national capital and since then the Bank has been growing continuously.

At present, Bank has large number of membership of individuals from different sections. The Bank has 12 branches in the NCR of Delhi. Bank offers 'traditional counter service'. Opening hours are designed to coincide with local market trend.

Board of Directors were worried from growing popularity of new style banks. These banks offer diverse range of services such as direct access to executive management, a single point of

contact to coordinate all banking needs, appointment banking to save time, free online banking services 24/7, free unlimited ATM access etc.

It has now been decided that the bank will focus on "What Customers Want" and will use a balanced scorecard to achieve this goal.

Required :

PRODUCE, for each of the three non-financial perspectives of a 'Balanced Scorecard', an objective and a performance measure that the bank could use with appropriate reason.

Solution 2 :

1. Internal Business Perspective

Objective: Cross-sell Products

Measure: Products purchased per customer

Reason: Cross-selling means encouraging customers to purchase additional products e.g. insurance, forex etc. It is a measure of customer satisfaction. Only if a service is perceived as highly satisfactory, then other services / additional products would be accepted by the same customer.

2. Learning and Growth Perspective

Objective: Increase the Number of New Products or Services Sold

Measure: Number of Customers Buying the New Products/ New Services

Reason: Long term financial success requires bank to create new products / services (e.g. internet banking, ATM access) that will meet emerging needs of current / future customers such as 24/7 banking.

3. Customer Perspective

Objective: Increase Customer Loyalty

Measure: Number of Accounts Closed or Closure Request Received

Reason: Customer loyalty describes the extent to which bank maintains durable relations with its customers. The share of existing customers should have a high importance as it indicates about image and reputation. Closure request is not a good sign for bank. Bank should investigate reasons for the same and take appropriate actions to improve services offered to retain customers.

Note : A student can write any other Objective & Measure, keeping in mind the bank's Goal.

Question 3 : Case Study

Fair Limited manufactures and sells motor vehicles in India and different parts of the world. The company has its head office in New Delhi and three regional offices. The manufacturing plants are situated in Pune and Bhubaneshwar. The company has over 10,000 employees who are paid a fixed salary and a performance related pay (PRP).

The PRP is determined using the financial performance as a measure. The performance of departments which are profit centers is based upon the revenues and profits which the departments generate. The performance of cost centers is based upon the cost savings against the budget.

Of late, the company has identified critical issues with the motor vehicles manufactured and sold in the market. In the last one year itself, the company has recalled more than 2 lakh vehicles owing to quality issues like faulty gearbox, issues with axle, braking systems etc. The company was also penalized for selling vehicles which does not meet the emission norms.

The board of directors carried out an internal review of these frequent recalls and issues with the vehicles. In most of the cases, it appeared that the recall of vehicles was on account of lower quality of material and parts used. A couple of critical quality and emission checks were ignored in order to dispatch more vehicles in the limited time, leading to higher sales and profits.

The board is concerned with the reputational risk with the issue related with recalls. The company was consumer's most trusted brand for last three years in a row. It is unlikely to win the award this year due to negative feedback from customers. The board wants to win the trust of the customers back and be profitable as well.

Required :

You are the advisor to the board. The board seeks your advice on the following aspects:

(i) Advantages and disadvantages of using financial measure as a performance measure.

(ii) Suggest an alternative performance measure which includes non-financial measures as well.

(iii) Identify 2 critical success factors and 2 Key Performance Indicators for the performance measure chosen in (ii).

Solution 3 :

What is the issue?

Fair limited is into manufacturing of motor vehicles. The company has used financial measures for performance. Of late, the company has faced quality related issues leading to vehicle recalls. The company has also been penalized for violating emission norms. Since the company has been using financial measures only, it appears that non-financial aspects related to quality have been ignored. The company has adopted the principle of profit at any cost which can be seen from use of low quality materials and parts as well as skipping key quality checks.

Financial Performance Measure

Financial performance measures focus on financial results or aspects. These measures focus on the profits made by a business or a unit of business. They also include costs saved against budgets. Various financial performance indicators include – growth in revenue, profitability, variance from budget, Return on Capital Employed etc.

In the case of Fair limited, the performance of employees is measured on the basis of financial performance indicator. When performance is evaluated on financial parameters, the employees and managers tend to focus only on profitability in anticipation of higher bonus and pays.

The problems related to quality issues in vehicles produced by Fair limited might be linked to the use of financial performance measure. Low quality parts are used to save costs and improve profitability. The quality checks prior to sales were also skipped to sell more vehicles with limited resources. This is an apparent case of compromise in quality for seeking higher profits and revenues. In light of above, the advantages and disadvantages of financial performance measures are given below.

Advantages

- Focus on financial objectives is linked to the overall objective of wealth creation of shareholders.
- Such measures are objective and not subjective.
- Quantification of results is possible.
- The measures are comparable across companies of a particular industry.
- The framework to measure financial performance can be easily established in most of the cases.

Disadvantages

- Focus on short term profits ignores long term sustainable growth. As can be seen in the case of fair limited, the company has compromised quality for short term profits. This is harmful to the company in the longer run.
- This measure can be distorted by inflation. A 5% growth in sales might be considered as good growth but if the inflation is 6%, the real growth is negative.
- Financial information might be manipulated to show a better performance.

Advantages of Non Financial Measures

- Non-financial measures help business to measures every area whether financial or non financial. Financial measure would not be able to suitably measure areas like performance of IT department.
- It focuses on qualitative aspects as well.
- These measures take a long-term view unlike financial measures where employees tend to take a short term view.

Disadvantages of Non-Financial Measures

- These require huge amount of information to measure each area of performance and might lead to shift of focus from core goals and values.
- These can be subjective as non-financial measures cannot be generally quantified.
- Non-financial measures like measures of quality are difficult to measure.

Balanced Scorecard

An alternative performance measure which focuses on both financial and non-financial measures is the Balanced Scorecard. It outlines four key areas in which company and divisional performance should be measured to focus on both the short and long term needs of the organisation. The key idea is that managers are to be appraised on a variety of measures which include non-financial measures so that their focus is both long and short term.

As discussed earlier, it appears that managers at Fair limited have ignored long term sustainable growth and qualitative factors and focused on short term profits and sales. This is one of the key disadvantages of a financial measure of performance. The company can start measuring performance both on financial as well as non-financial aspects. This would ensure that employees are not short sighted on profits alone.

The four areas or perspectives in a Balanced Scorecard are –

- **Financial Perspective** - Financial perspective focuses on financial performance of the business and divisions. The various financial measures used by companies are profitability, revenue growth, cost control etc. This is currently being used in Fair limited to measure performance.
- **Customer Perspective** - This perspective views organizational performance from the point of view the customer or other key stakeholders that the organization is designed to serve. These could include measures like customer satisfaction index, percentage of returns, percentage of goods delivered on time etc.
- **Internal Business Perspective** - This perspective views organizational performance through the lenses of the quality and efficiency related to product or services or other key business

processes. The measures under internal business perspective could be number of defective products produced, production performance per unit of time etc.

- **Learning and Growth Perspective** - This perspective views organizational performance through the lenses of human capital, infrastructure, technology, culture and other capacities that are key to performance. The key measures could be number of new products produced, amount invested in training and development etc.

In each category/perspective, the organisation must follow through from the business strategy, to ensure they are focused on the long-term direction of the business. Clear objectives should be set under each category according the SMART criteria (Specific, Measurable, Achievable, Relevant and Time-bound). Actual performance should be measured at the end of the period, and lessons learnt from actual results should be used to improve performance in future periods.

Applying Balanced Scorecard to Fair Limited

The issues related to quality have arisen at Fair Limited as the managers and divisions focused on profits at the cost of quality. The recall of vehicles was primarily on account of use of substandard parts. The company should consider using non-financial measures also as a performance measure. Balance scorecard can be effective tool to apply financial and nonfinancial measure.

The company must take steps to put focus on quality related aspects as well as financial aspects. A proper application of various Key Performance Indicators under the respective Critical Success Factors can help the company overcome the current issue.

Critical success factor (CSF) is a management term for an element that is necessary for an organization or project to achieve its mission. It is a critical factor or activity required for ensuring the success of a company or an organization. These are the key areas in which the organisation has to do well if they are to remain competitive and profitable. The critical success factors have to be linked with the overall strategy of the organisation.

Key Performance Indicators (KPIs) are the ways in which the organisation's performance for the CSF can be measured. It is a measurable value that demonstrates how effectively a company is achieving key business objectives. Organizations use KPIs to evaluate their success at reaching targets.

The Critical Success Factors and Corresponding KPIs for Fair limited for each of the perspective in the balanced scorecard is given below:

Perspective	Critical Success Factors	Key Performance Indicator
Financial	□ Be the Most Profitable Company in Motor Vehicle Industry. □ Become the No.1 Company in terms of Market Share in five years.	□ Profitability ratios. □ Revenue growth. □ Variance to budget. □ Number of vehicles sold.
Customer	□ Be No. 1 Choice of Customers. □ Implement Zero Recall Policy.	□ Number of vehicles sold vis-à-vis those sold by competitors. □ Number of recalls of vehicles. □ On time delivery of vehicles.

Internal Business	☐ Total Quality Management. ☐ Zero Idle Time at Factory.	☐ Number of defective cars produced. ☐ Number of cars returned by customers as faulty. ☐ Number of hours spent in waiting by labours at assembly line.
Training and Development	☐ Upto Date Technology used in Manufacturing Facilities. ☐ Skill Development for Labour and Supervisors.	☐ Amount spent on research and development year on year. ☐ Number of training hours undergone by workers and supervisors. ☐ Number of new models of vehicles launched.

Question 4 : [RTP - May 2018]

Case Study : Value Chain Analysis, Balanced Scorecard, KPI

You are the Finance Manager of DP Limited which is in the business of manufacturing wire rods. A division in the company manufactures copper wire rods from a single manufacturing plant in Central India. The division purchases raw material (copper cathodes) from various suppliers across the country. The cathodes are melted and wire rods of various dimensions are produced. Each batch of wire rods produced is tested for quality and strength.

The wire rods are stored in rolls in the warehouse and dispatched in company owned trucks as per the requirement of the customers. The customers are required to pay 50% of invoice value as advance and balance 50% within 30 days of delivery of goods. The company prices its copper wire rods based on the price prevailing on London Metal Exchange after adjusting it with a factor to cover conversion costs and profits.

The company explores newer markets by advertising in national dailies and participating in various industrial events in India as well as abroad. An annual conference of customers is conducted by the company to improve customer relationships and attract newer customers. The customers have right to return the material if quality specifications are not met. There is a separate team to handle such complaints.

The following email was sent by the Chief Financial Officer of the company to you.

From: Chief Financial Officer

To: Finance Manager

Subject – Commodity Price Fluctuation

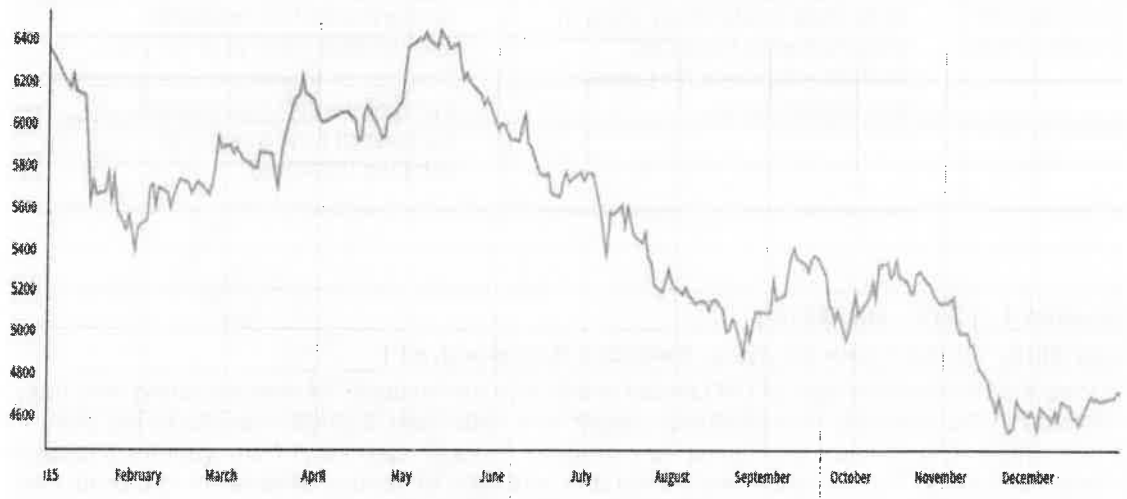
The board is quite aware of foreign exchange fluctuation related risks. However, they are not much aware of risks related to fluctuation in commodity prices. The prices of copper which are used to manufacture copper wire rods have fallen down by over 20% in the last six months owing to global factors.

The procurement team of Copper Wire Division has been waiting for the right time to buy these metals as they expect the prices to fall down further. However, we are at a verge of stock-out of these metals as no purchase was made in the last one month.

The bonus of procurement team largely depends on the annual savings as compared to the budgeted cost of purchase. I am not happy with the approach of speculation and making profits out of price fluctuation in raw materials. Could you highlight the issues related with our performance measurement mechanism and suggest how it could be improved?

Regards
Chief Financial Officer

Attachment:
Copper Prices Quoted on LME



Required :

(i) EXPLAIN and IDENTIFY the various primary activities of Copper Division.

(ii) DISCUSS the issues with performance measure in force in the company.

(iii) ADVISE an alternate performance measure and Identify Key Performance Indicators (KPI).

Solution 4 :

(i) Value chain is defined as "a chain of value added activities; where products pass through the activities in a chain, gaining value at each stage". Value chain focuses on systems, and how business inputs are changed into business outputs purchased by customers. The entire set of activities that a business undertakes to convert inputs in to outputs are interlinked to each other.

Porter's value chain classifies activities into primary activity and secondary activity.

Primary Activities :

Primary activities are those activities that are directly related with creating and delivering a product to the end customers. The following activities are considered as primary activities:

1. Inbound Logistics

Inbound logistics involves arranging inbound movement of materials from suppliers to the manufacturing plants. The activities related to inbound logistics in the case of copper division of DP limited would involve transporting copper cathodes from multiple suppliers across the country and storing them in the warehouse. The cathodes stored in warehouse would be issued to the production facilities depending on the requirement of the production plants.

2. Operations

Operations involve those activities which are concerned with conversion of input into outputs in case of manufacturing companies. The activities under operations would include those related to melting of copper cathode and converting the copper cathodes into wire rods. The quality tests carried out for wire rods would also be included as a part of operations.

3. Outbound Logistics

These include planning and dispatch, distribution management, transportation, warehousing, and order fulfillment. This includes warehousing of finished goods (copper wire rods) and distribution of copper wire rods to its customers. The company uses its own trucks to distribute finished goods to its customers. The scheduling of trucks and dispatch of material would also be a part of outbound logistics.

4. Marketing & Sales

Marketing and sales are the means whereby consumers and customers are made aware of the product which is ultimately sold to them. The activities include selling products to the end customers covering activities like product management, price management, promotion and marketing management. DP limited uses advertisement in national dailies and holds conferences as a part of its marketing and sales efforts. The company also holds annual customer conference to improve customer relations and attract new customers.

5. Service

In case of manufacturing industry, service generally refers to the after sales service which are required to maintain the value of product and includes activities like installation, repair etc. The service team is also expected to handle customer returns on account of poor quality of copper wire rods.

(ii) What is the issue?

A procurement team is generally a cost centre and the most appropriate way to evaluate performance of cost centre is the comparison between actual cost and budgeted cost (also called variance). A large portion of bonus (performance measurement) is dependent on the savings in actual purchase cost.

The company has adopted variance analysis as a measure of performance. If the team is able to reduce the actual cost of purchase as compared to the budgeted cost, a higher bonus is paid. The procurement team has stopped purchase of copper cathodes to save on the purchase budget which ultimately would translate into higher payout of bonus.

The commodity prices of copper have fallen by about 20% in the last six months. The speculation of fall in price has resulted in halting of procurement process. It is very difficult to time the market and such speculation could lead to losses to the company. There could be a stock-out situation if the procurement is not resumed and the situation could hamper the production and overall delivery schedules.

The procurement team appears to have taken a short- term view of price movement. The team is focused on earning higher bonus and hence is waiting to buy at lower prices. There is a larger impact of not being able to deliver product on time which could damage the reputation of the company. This has been ignored by the procurement team. Managers must be encouraged to consider the impact on the company as a whole and not on just the own department.

The company is using just a financial measure to measure performance. This can result in lopsided view of the goals and objectives of the company. Managers tend to look at short term profits and ignore the long- term growth.

Optimum Performance Measurement

A performance measurement is most effective when the goals of the respective departments are aligned with that of the company. This ensures that each employee within the company works towards the overall objective of the company. The company manufactures wire rods and the objective of the copper division is to manufacture copper wire rods as per the requirement of the customers.

The profit flows from the main business of the company. If a department focuses on an objective which is not aligned with the main goal, the company as a whole suffers. A stock-out like situation would hamper the image of a company, if wire rods are not delivered as per schedule to the customers.

Another aspect to be considered is that managers and employees are evaluated only on those parameters which are controlled by them. Uncontrollable factors should be kept outside the purview of performance measurement. If for example, the procurement team is able to purchase copper at a discount to market price because of their efforts, it could be considered as saving.

The prices of copper are determined by the prices on commodity exchanges and are not in the control of procurement managers. The performance of managers and employees should not be impacted by global change in prices of commodities as they are not controlled by the concerned employees.

(iii) Alternate Performance Measure

The issue with financial performance measures alone is that managers tend to have a short-term view as can be seen in our case. In order to overcome this disadvantage of financial measure, Kaplan and Norton developed the Balanced Scorecard which outlined four key areas in which company and divisional performance should be measured to focus on both the short and long term needs of the organisation.

The key idea is that managers are to be appraised on a variety of measures which include non-financial measures so that their focus is both long and short term. The four perspectives used to measure performance in a Balanced Scorecard are given below:

(a) Financial Perspective: This measures the financial performance which is linked to the overall objective of maximising shareholder's wealth. We already use financial measures to measure performance. The weightage could be reduced to include other measures. Also, factors beyond the control of managers like commodity prices should be excluded.

(b) Customer Perspective: This includes focusing on customers and meeting their needs. Measures could include quality of material produced, optimum levels of inventory maintained, number of stock-out instances, etc.

(c) Internal Business Perspective: This includes measures to evaluate the performance of business processes with particular emphasis on productivity and efficiency. Measures could include procurement lead time, number of defective purchases etc. The company could use measures like JIT to reduce the procurement lead time.

(d) Training and Growth: This includes focusing on innovation in processes and developing and learning for the future. Trainings could be given to procurement managers to identify best quality of copper cathodes, aspects related to purity etc.

Question 5 : [RTP – Nov. 2019]

B Steels is a leading manufacturer of flat and long products and have state-of-the-art plants. These plants manufacture value added products covering entire steel value chain right from coal mining to manufacturing Pig Iron, Billets, HR Coils, Black Pipe/GI Pipe, Cable Tapes etc. conforming to international standards. The rock-solid foundation combined with nonstop upgradation and innovation has enabled the B. Steels to surpass its goals constantly. Its vision and values for sustainable growth is balancing economic prosperity and social equality while caring for the planet. It is preparing its balanced scorecard for the year 2018-19. It has identified the following specific objectives for the four perspectives.

Improve post-sales Services	Improve employee morale	Improve employee job satisfaction
Increase gross margin	Increase number of customers	Increase profitability of core product line
Increase plant safety	Increase customer retention	

B. Steels has collected Key Performance Indicators (KPIs) to measure progress towards achieving its specific objectives. The KPIs and corresponding data collected for the year 2018-19 are as follows :

Key Performance Indicators (KPIs)	**Goal**	**Actual**
Average replacement time (number of days)	2	1.5
Gross margin growth percentage	15%	16%
Number of customers	15,000	15,600
Number of plant accidents	0	2
Percentage of repeat customers	83%	81%
Core product line profit as a percentage of core product line sales	5%	4.4%
Employee turnover rate (number of employees leaving / Average number of total employees)	2%	3%
Employees satisfaction rating (1-5, with 1 being the most satisfied	1	1.2

For preparation of Balanced Scorecard report, the following format has been developed :

B. Steels - Balanced Scorecard Report For the year ended March 31, 2019					
Perspective	**Objective**	**KPI**	**Goal**	**Actual**	**Goal Achieved (Yes or No)**
Financial	x	x	x	x	x
Customer	x	x	x	x	x
Internal Business Process	x	x	x	x	x
Learning and Growth	x	x	x	x	x

Required :

(i) PREPARE a balanced scorecard report using the above-mentioned format. Place objective under the appropriate perspective heading in the report. Select a KPI from the list of KPIs that would be appropriate to measure progress towards each objective.

(ii) B. Steels desires to integrate sustainability and corporate social responsibility related KPIs in their balance scorecard to adhere to its vision and values. ADVISE B. Steels, using TBL framework.

Answer 5 :

(i) **B. Steels - Balanced Scorecard Report**
For the year ended March 31, 2019

Perspective	Objective	KPI	Goal	Actual	Goal Achieved?
Financial	Increase Gross Margins	Gross margin growth percentage	15%	16%	Yes
	Increase Profitability of Core Product Line	Core product line profit as a percentage of core product line sales	5%	4.4%	No
Customer	Increase number of customers	Number of customers	15,000	15,600	Yes
	Increase customer retention	Percentage of repeat customers	83%	81%	No
Internal Business Process	Improve post sales service	Average replacement time (number of days)	2.0	1.5	Yes
	Increase plant safety	Number of plant accidents	0	2	No
Learning and Growth	Improve employee job satisfaction	Employees satisfaction rating (1-5, with 1 being the most satisfied)	1	1.2	No
	Improve employee morale	Employee turnover rate	2%	3%	No

(ii) **"Triple Bottle Line"** concept encourages companies to measure not only their financial profits, but also the impact that its operations have on the society and environment. Therefore, this framework measures the full cost of doing business by measuring the following bottom lines : (i) Profit (ii) People and (iii) Planet.

Diminishing non-renewable resources have forced businesses to focus on sustainable manufacturing. This term refers to managing manufacturing processes such that they minimize any negative impact on the environment by conserving energy and natural resources. In many instances, improved operational efficiency not only reduces waste

(thereby costs) but also improves product safety, it strengthens the brand's reputation and builds public's trust about the company. As a long-term strategy, this improves business viability and provides a competitive edge to the company. This concept is the **"Planet Bottom Line"** within the Triple Bottom Line framework. Metrics on the following aspects may be investigated to find out the environmental impact of business operations.

- Material consumption
- Energy consumption
- Water utilization
- Emissions, treatment of effluents and waste (include emissions affecting air, water, and land)
- Fuel consumption by tracking freight and transportation costs
- Land utilization
- Recyclability and disposal of product

"Corporate Social Responsibility" enables the company to become conscious of the impact its operations has on the society. CSR programs, through philanthropy and volunteer efforts can forge a stronger bond between itself, its employees, and the wider community. Again, this improves both the brand image as well as builds public's trust about the company. This concept is the **"People Bottom Line"** of the Triple Bottom Line framework. Metrics on the following aspects may be investigated to find out the social impact of business operations :

- Work place environment and labour relations
- Occupational health and safety, accident rates
- Human rights practices – child labour, employee work-place security policies
- Training and education
- Equal opportunity employer – diversity of workforce and opportunities available for employees' growth.
- Suppliers – local sourcing versus sourcing from external markets.
- Philanthropy and volunteer programs organized
- Product safety in terms of customer health and safety
- Pricing of essential products to enable wider reach within the society
- Transparent and ethical business practices

B. Steels can study these aspects, determine the relevant metrics, and prepare periodic KPI reports that can help in measuring responsibilities towards sustainability and social impact.

Question 6 : [RTP May 2020 – Case Study]

History : In 2009, Luxo had monopoly in the eyewear market of America, but the problem with the company was that it was selling variety of eyewear, by putting a big price on it. At present, there is almost nothing that you can't buy online, but at that time there were limited things that you could order online. In 2009, Arby Signer Inc. launched a website to sell eyeglasses online. Selling eyewear online and competing with Luxo was a challenge for Arby. Within just 4 years Arby break the monopoly of Luxo and capture he major market of America. People find it really convenient to buy sunglasses and glasses online and get delivery at doorstep. Following the footstep of Luxo, Arby eliminated the middleman from the manufacturing process, launched its own optical lab to have its own manufacturing process. The range of products/services offered by Arby which make different from Luxo include easy buying process, delivery at door step, stylish glasses, customize eyewear glasses, products was sold on the site at very affordable, with a starting range of just $95 etc.

Mission, Vision & Objectives

Mission	"Improving people's lives with our health care products in a socially cognizant way"
Vision	"To be a trusted health care partner"
Objective	"To offer people designer eyewear at a revolutionary price"

As a mission- based brand, Arby needed a way to instill their team of employees with a passion for the mission. Arby let their employee know 'what they value' and 'what the employee should value' in 'who they are'. This is important to setting up 'what they do' and 'why they do it' as a core foundation of their brand story. Arby also contributes in the philanthropic work, it inspires the people with its mission. For every pair of glasses customer pay, Arby donates a pair of glasses to needy person. In December 2019, Arby reported the donation of 9,60,000 pairs of eyeglasses. The company also claims to be 90% carbon neutral.

Extracts from the Balanced Scorecard

Performance Measure	2019 Actual	2019 Target
Financial perspective		
Return on capital employed (ROCE)	13%	14%
Net income	$95 Millions	$89 Millions
Customer perspective		
Number of first-time buyers	1,20,000	1,00,000
Customer retention ratio	78%	75%
Number of complaints (per 1,000 customers)	1.5	2
Number of glasses donated to needy people	9,60,000	9,00,000
Internal processes		
Number of business processes re-engineered	110	100
Number of new services made available through online application	2	4
Incidences of fraud on customers' accounts (per 1,000 customers)	3	10

Total CO2 emissions (tons)	850	1,100
Learning and growth		
Number of employees trained to instruct retailers	1,000	1,050
Number of hours (paid for) used to support social plans	10,200	10,000
Number of trainee positions from rural areas	189	200

Other Information

Arby Signer has recently invested heavily in IT security to prevent fraud.

Required :

EXAMINE the performance of The Arby Signer in 2019.

Answer 6 :

The balanced scorecard approach looks both financial performance and non-financial performance. In order to gain competitive advantage, organizations have to be conscious of the needs and convenience of their customers. The Arby signer has a vision and strategy which goes far beyond just making money. They want to help the community and give something back to customers also. Hence, performance measures which address whether the Arby is being successful in pursuing their vision has been incorporated in Balanced Scorecard. The performance of the Arby will be considered under each of the titles used in the balanced scorecard:

Financial Perspective

The Arby has had a year of diverse achievements when looking at the extent to which it has met its financial targets. Its ROCE shows how efficiently it has used its assets to generate profit for the business. The target of ROCE for the year was 14% but it has only achieved 13% return. The Arby's Net Income, however, was in fact $6 million higher than its target, which is good. The most likely reason for the under target ROCE is possibly the investment which Arby has made in IT security. Whilst this may have reduced ROCE, this investment is essentially a good idea as it helps Arby to pursue its mission and will keep customers happy.

Customer Perspective

Regarding its customers, Arby's performance is better in the current year. It has not just exceeded its target sale to first time buyers by 20,000 but also improved its customer retention ratio, which is good for company to pursue its vision of being a trusted healthcare partner.

Customers complaints have reduced from 2 complaints to 1.5 complaints for every 1,000 customers, the exact reason is not clear but it might be because of improved processes and team efforts of employees.

Also, the number of glasses donated exceeded the target. It shows that company has exceeded its target of helping people which is good for the company's reputation.

Internal Processes

Number of business processes within Arby re-engineered has exceeded the target, which is very good and the impact of which may be reflected in the lowering of level of customer complaints. Likewise, the investment to improve IT security has been a great success, with only three incidences of fraud per 1,000 customers reported compared to the target of 10. However, only two new services have been made available via online application, instead of the target of four, which is unsatisfactory. But fortunately, its CO2 emission is below to the target level.

Learning and Growth

The Arby has succeeded to train its employees to instruct retailers. However, the number of employees trained to instruct retailers are comparatively lesser than targeted, shortfall in training of employees to give instruction to retailers may have an impact on the Arby's failure to meet its target of market expansion.

Number of hours (paid for) used to support social plans are comparatively higher, it results in additional costs which could have contributed to the fact that the Arby did not quite meet its target for ROCE. Further, company has not met aim for helping the rural area as targeted. This may be because the number of candidates applying from these areas was not as high as planned and this situation is beyond company's control.

In general, the Arby Signer had a successful year, meeting many of its targets.

Performance Measurement in Not for Profit Sector

Question 7 : [ICAI Website]

West Coast community operates Homelessness Services (HS) on a not-for-profit basis as a local solution to local housing needs. The primary objective is to meet the accommodation needs of persons within its locality targeting those living in the low/middle income groups and senior citizens. Accommodation is basically furnished; it consists of a small house, with kitchen, bathroom, bedroom(s), and a sitting room. HS manages 450 such houses across various localities. Exclusive Services (ES) is a profit-seeking organisation which provides rented accommodation to the public. ES manages 200 such houses across localities similar to HS' operations.

Income and Expenditure accounts for the year ended 31st March 2018 were as follows:

Particulars	**HS (₹)**	**ES (₹)**
Rent Received	1,02,98,600	1,09,98,000
Less:		
Employee Costs	24,00,000	38,00,000
Planned Maintenance and Substantial Repairs	34,19,500	10,41,000
Running Repairs	23,91,600	6,38,000
Miscellaneous Operating Costs	15,27,500	11,75,000
Insurance, Property Taxes, and Interest etc.	13,15,500	18,75,000
Operating (Deficit) / Surplus	(7,55,500)	24,69,000

Operating Information in respect of the year ended 31st March 2018 was as follows:

House and rental information:

Size of House	Number of Houses		Rent per week (₹)	
	HS	ES	HS	ES
1 Bedroom +	40	20	400	750
2 Bedrooms +	80	40	450	800
3 Bedrooms +	250	140	500	1,175
4 Bedrooms +	80	Nil	700	N.A.

HS had certain houses that were unoccupied during part of the year. The rents lost as a consequence of unoccupied properties amounted to ₹ 18,17,400. ES did not have any unoccupied houses at any time during the year.

Employees were paid as follows:

Number of Staff		Salary per staff p.a. (₹)	
HS	ES	HS	ES
1	2	3,00,000	5,00,000
2	2	2,50,000	3,00,000
4	11	2,00,000	2,00,000
8	-	1,00,000	-

Planned maintenance and substantial repairs undertaken:

Nature of Work	Number of Houses		Cost per House (₹)	
	HS	ES	HS	ES
Miscellaneous Building Work	10	-	12,500	-
Sanitary Fittings (Kitchen + Bathroom) [all are the same size]	45	5	26,100	52,200
AC Upgrades/ Replacements	8	-	15,000	-
Replacement of Wooden Structure for 3 Bedroom Houses	50	13	40,000	60,000

Running Repairs Information:

Classification of Repair	Number of Repairs Undertaken		Total Cost (₹)
	HS	ES	HS
Emergency	480	160	6,72,000
Urgent	990	376	11,28,000
Non-urgent	560	102	5,91,600

Each repair undertaken by ES costs the same irrespective of the classification of repair.

Required :

(i) Critically EVALUATE how the management of Homelessness Services could measure the 'Value for Money' of its service provision during the year ended 31 March 2018.

(ii) IDENTIFY, 2 performance measures in relation to Flexibility and Service Quality (dimensions of performance measurement).

(iii) ANALYSE, 3 performance measures relating to 'Cost and Efficiency' that could be utilised by the management of Homelessness Services when comparing its operating performance against that achieved by Exclusive Services.

Solution 7 :

(i) For commercial enterprises, generating profits is a very important objective. Likewise, not-for profit enterprises have certain cultural, social or educational objectives for which they are created. Regardless of the type of organization, it is important to know whether the internal operations meet certain performance benchmarks, that will ensure that the organization achieves its objectives in a better manner. Moreover, even if the organization does not operate for profits, it is important for it to be "cost effective". Resources (including money) should be used optimally to achieve intended outcomes. For example, HS can use this benchmarking tool to look into the following questions:

(a) Does the organization function in an efficient and cost effective manner?

(b) Does the estate management make best use of the buildings to achieve the objectives of the organization?

(c) Does the estate management function manage upkeep of buildings in terms of repairs and improvements in an effective manner?

(d) Are the tenants satisfied with the service provided by the estate management and the suitability of the accommodation for their needs?

"Value for Money (VFM)" is an assessment made based on the criteria of economy, efficiency and effectiveness.

Economy involves minimising resource consumption while meeting specified requirements of quality and quantity. Minimize the cost of resources / required inputs (implies to spend less) while ensuring that the desired quality of service is achieved. For HS, inputs could be purchases made for maintenance and repair work like sanitary fittings, AC, wooden structure for the houses etc., while resources could be the labour employed to carry out these services. HS should aim at purchasing required quality of inputs at the least possible price. Skilled labour needed for this job should be procured at the lowest pay scale possible. Procuring these at lower cost leads to savings for HS. At the same time, HS should ensure that cost cutting / saving does not come at the cost of quality. Lower quality, implies inferior service levels, which ultimately will compromise HS' social commitment to provide quality housing to needy members of its community.

Efficiency involves maximising the ratio between resources (input) and the output of goods, services or other results.

The focus of efficiency is on the process of rendering service. The objective of efficient operations is to maximize output using minimum resources. Improved productivity means that resources procured are used in an optimal way (implies spending well).

In the case of HS, one of the resources is the labour employed for repair and maintenance work. Efficiency (productivity) measured would be the relationship between the employees available and the repair work performed by them. If the pool of employees do more repair work than the benchmark set, productivity is higher. This also closely ties up with economy (cost) of operations.

If the given pool of employees (resources), who are paid optimum salary (cost), cater to more repair and maintenance work, economy of operations is achieved due to higher productivity of operations. In case these activities are outsourced, efficiency and economy can be achieved by calling for tenders. Select the tender that provides maximum work for least cost.

In addition, HS may explore options for efficiencies from business process improvements, shared services as well as further efficiencies with assets management.

Effectiveness involves ensuring that the outcome achieves the desired policy aims and objectives. Have the objectives been achieved, how does the impact of the actual output / service compare with its intended impact? (implies to spend money wisely to achieve desired objectives). In the case of HS, effectiveness could be assessed based on the following questions

(a) Are the housing needs of the targeted community members met?

(b) Are the tenants satisfied with the accommodation?

(c) Given its social cause, are the staff friendly, courteous and hospitable to the customers?

(d) Do the housing accommodations comply with safety standards and other legal requirements?

Each measure is inter linked with the other. For example, HS has replaced sanitary fittings in the kitchen and bathroom in 45 houses for ₹ 26,100 each, costing a total of ₹ 11,74,500. Compared to this, ES has spent ₹ 52,200 on each house for only 5 houses, costing a total of ₹ 2,61,000. For the cost of ₹ 11,74,500 ES could have replaced fittings in only 22 houses (₹11,74,500 / 52,200) as compared to HS' ability to replace fittings in 45 houses. Therefore, HS' decision has been economical, getting more work done for same cost. At the same time, this does not indicate whether the fittings replaced by HS are of similar or better quality as compared to ES. ES could have used better quality fittings that last longer, enhance customer experience, safety etc. The spending by ES could have been more effective than HS because it helps achieve the desired objective of customer satisfaction, safety and lesser running cost for maintenance. Therefore, to achieve economy, HS may have compromised on effectiveness.

Benchmarking is a good method of measuring performance; it enables a comparison of the process, costs etc. with those of a close competitor. HS can use benchmarking information to learn from best practice, change procedures and processes to achieve enhanced methods of working, and reduce unnecessary expenditure.

However, benchmarking of performance against ES is not ideal. The performance of HS can be better measured by adopting benchmarking against similar charities whose primary objective is the provision of accommodation to the communities in which they operate.

Thus, HS must have permanent membership of the House Benchmarking Organisations, which helps social housing property-owners to compare the costs of service delivery, resources, and key performance indicators across all areas of the business. For example, the management of HS can enquire about a norm in respect of the repair charges, sanitary charges or wood structure replacement charges etc. of similar non-profit seeking organisations.

Further, benchmarking should be conducted annually to analyse all areas of the business and is used to identify high performing, low cost services. Using the annual benchmarking exercise results, the HS can plan to target those areas that are low performing and high cost.

Overall, HS should have strong commitment to value for money, which needs to be reflected in the business plan and in service-delivery plans. By applying these principles HS would be able to achieve the optimum utilisation of resources, which will in turn lead to extra capacity and allow HS to provide better services.

(ii) **The Building Block Model** proposed by Fitzgerald and Moon, gives six dimensions of performance measurement including service quality and flexibility.

Service Quality

Service quality is the measurement of how well a delivered service conforms to the customer's expectations. As a not for profit organization, HS provides housing services to cater to the needs of lower and middle income groups as well as senior citizens in the local community. Although service is provided at a concessional rate compared to its commercial peer ES, quality of HS' service needs to be judged based on certain parameters that were promised by the organization to its tenants. These could be used as parameters to assess service quality. Some of them could be:

- Behaviour, attitude, proactivity of staff employed by HS.
- Quality of basic amenities provided.
- Availability of on-site service for the residents
- Safety within and around the residential unit etc.

Data for assessment of quality can be collected from feedback of tenants, analysing the number and nature of complaints made by tenants, tenant retention rate/loyalty etc. Feedback from tenants can be taken on specific issues or could be general in nature.

Flexibility

Flexibility is the ability of the organization to adapt to customers' requirements. This can be measured through service delivery time, promptness in responding to customer requests, ability of employees to perform different kinds of work etc. In the case of HS, the following performance measures can be used to assess the flexibility:

- The average waiting time for a tenant for a house to become available. Lower the wait time better the flexibility as it indicates that there are sufficient housing units available for rental accommodation.
- Following change in requirements, ability to meet the tenant's request for another house of a different size. This indicates whether the range of housing units offered is sufficient (flexible) to cater to the tenants' changing demand.
- Waiting time for undertaking repairs of an emergency nature, once notified by a tenant. Lower the waiting time during emergencies indicates the availability of appropriate personnel to carry of the repairs on short notice.

Note : Students are only required to provide any two performance measures.

(iii) The management of HS could use the following performance measures relating to Cost and Efficiency :

An organization should aim at achieving results with maximum efficiency at the least possible cost. Efficiency measures the relationship between the input resources utilized and the output service achieved. Few of the measures that HS could use to compare performance with ES are:

The Average Employee Cost per week per house

Here, the resource (input) are the employees, which is 15 in case of both HS and ES. The employees at HS cater to 450 houses as compared to 200 houses catered by ES. Therefore, HS is more efficient as compared to ES.

Likewise, cost of resources to HS is the employee cost, for which the pay structure and remuneration policies are different in both the organizations. HS has the ability to hire most of its employees at an annual salary of ₹100,000, which is the least level in the pay structure. Comparatively, ES also hires cheaper labour but at a slightly higher pay level of ₹200,000 annual

salary. Therefore, the total cost of labour is higher by ₹14,00,000 (58%) for ES as compared to HS.

To compare the figures on a common factor, the employee cost can be calculated per week per house as follows :

$$= \frac{\text{Total employee cost}}{(\text{No. of houses} \times 52 \text{ weeks})}$$

$$\text{For HS} = \frac{₹\ 24,00,000}{(450 \text{ houses} \times 52 \text{ weeks})} = ₹\ 102.56 \text{ per week per house}$$

$$\text{For ES} = \frac{₹\ 38,00,000}{(200 \text{ houses} \times 52 \text{ weeks})} = ₹\ 365.38 \text{ per week per house}$$

The average employee cost per week per house of ES is ₹ 365.38 which is 3.56 times of HS. It can be concluded that HS is both efficient, in terms of being able to cater more houses with same number of employees, as well as cost effective due to the use of cheaper labour.

The Average Day to Day Repair Cost per week per house

Here, the resource (input) is measured in terms of the cost spent on repairs to maintain the rental houses. Running repairs generally do not add much value to the rental houses. Therefore, lesser the repairs, higher the efficiency. From the income and expenditure table, it can be seen that HS has spent ₹ 23,91,600 as running repair cost for 450 houses versus ES that has spent ₹ 6,38,000 for 200 houses. To compare them on a common factor, the average repair cost per week per house has been calculated as follows :

$$= \frac{\text{Total Running Repairs cost}}{(\text{No. of houses} \times 52 \text{ weeks})}$$

$$\text{For HS} = \frac{₹\ 23,91,600}{(450 \text{ houses} \times 52 \text{ weeks})} = ₹\ 102.21 \text{ per week per house}$$

$$\text{For ES} = \frac{₹\ 6,38,000}{(200 \text{ houses} \times 52 \text{ weeks})} = ₹\ 61.35 \text{ per week per house}$$

The average day to day repair cost per week per house for ES is ₹ 40.86 less than that of HS, which is around 40% less than HS. This may be due to the fewer repairs required and the fact that there is no extra cost required for emergency and urgent repairs.

The cost of repairs whether emergency, urgent or non-urgent to ES is the same. It can be calculated as -

$$= \frac{\text{Total Running Repairs cost}}{\text{Total No. of repairs done}} = \frac{₹\ 6,38,000}{(160 + 376 + 102)} = ₹\ 1,000 \text{ per repair}$$

Whereas the cost of different types of repair work is different for HS and it can be calculated as follows -

For Emergency Repair	= ₹ 6,72,000 / 480	= ₹ 1,400 per repair
For Urgent Repair	= ₹ 11,28,000 / 990	= ₹ 1,139.40 per repair
For Non-urgent Repair	= ₹ 5,91,600 / 560	= ₹ 1,056.43 per repair

ES's low cost of repairs (which is identical for all types of repairs – emergency, urgent and non urgent) may have been achieved through entering into a contractual agreement for repairs. HS should also think of entering into such contracts in order to save money.

Percentage of Rent Lost

Occupancy of rental houses indicate whether the capacity (in terms of houses rented) is being optimally utilized or not. Lower the vacancy better is the efficiency in terms of capacity utilization. This represents opportunity cost of not letting out the property.

Calculation of % rent lost by HS -

$$= \frac{\text{Amount of Rent Lost}}{\text{Total Possible Gross Rent}} = \frac{₹\ 18,17,400}{(₹1,02,98,600 + ₹18,17,400)} = 15\%$$

ES did not have any unoccupied properties at any time during the year; it has 100% occupancy. This shows that ES's properties are in high demand. On the other hand, HS has lost rent worth ₹ 18,17,400 through unoccupied properties; this is about 15% of the gross rent receivable.

The management of HS should identify the reasons why the houses remained unoccupied when the occupancy rate is 100% for an organisation like ES, a peer organisation should be used to benchmark the performance.

Question 8 : [RTP Nov. 2020 + Case Study Digest of ICAI]

Olderhelp India is a leading charity working with and for the disadvantaged elderly for over 5 decades. Olderhelp advocates for their needs for universal pension, quality healthcare, action against elder abuse and many more. Olderhelp collects donations and funds and utilises them for the welfare of elders. The governing body of Olderhelp has setup four performance objectives for the three months to 30 Sep. 2020:

- To achieve a level of donation of ₹ 30,00,000
- To keep advertisement cost not more than 3% of donation.
- To keep welfare cost more than 85% of donation.
- To achieve 90% of respite care requested from the community

Actual results were as follows:

Particulars	July	Aug.	Sep.
Donation (₹)	7,00,000	13,00,000	11,00,000
Advertisement Costs (₹)	17,500	52,000	33,000
Elder's welfare cost (₹)	5,74,000	10,92,000	9,79,000
Respite care requests (days)	1,120	1,140	1,200
Respite care provided (days)	896	1,003	1,104

The aim is to serve elder needs in a holistic manner, enabling them to live active, dignified and healthier lives.

Required :

PREPARE a statement to assist the manager in evaluation of performance against objectives and COMMENT on the performance.

Answer 8 :

Statement Showing Performance :

Particulars	July	Aug.	Sep.
Advertisement cost as a percentage of donation - actual	2.5%	4%	3%
Target % of Advertisement cost of donation	3%	3%	3%
Welfare cost as a percentage of donation - actual	82%	84%	89%
Target % of welfare cost as a percentage of donation	85%	85%	85%
Respite care provided - actual	80%	87.98%	92%
Target percentage of respite care	90%	90%	90%

Comments :

Total donation received ₹ 31,00,000 (i.e. ₹ 7,00,000 + ₹ 13,00,000 + ₹ 11,00,000) has exceeded the target ₹ 30,00,000. Though there is no fix trend of receiving fund while it is noticeable that there were special fund raising activities in August which generated highest receipt.

Advertisement costs have been within the target of 3% in July and Sept but exceeded the target in August. More information is needed to establish why this occurred.

For the month of July and Aug, the welfare cost are less than the target, while for the month of September, welfare cost as % of donation has been exceeded the target.

There is a steady improvement in the respite care provided by Olderhelp and for the month of September, it has surpassed the target.

Question 9 : [ICAI Module]

Topic : Economic Value Added (EVA)

X Greetings is a Korean Company based in Seoul, committed to supplying the highest quality stationery, greeting cards, gifts, and children's products, which are sourced from all over the world. Company also distributes Sunday Paper – Korean made eco-friendly stationery designed and manufactured in Seoul. X's home currency is the KRW (i.e. Korean Won). It is also listed on the KRX (i.e. Korean Stock Exchange) for last 20 years and its current share price is KRW 23.25.

You are a Management Accountant of the X Greetings and directors have asked you to study X on value-based management which is a different approach to the performance management. The directors have heard about this method considering it a way of focusing on shareholder's interests and in the present economic scenario, they think it to be useful for the growth of X.

Conventionally earnings per share (EPS) and share price were being used to assess performance. The proposed changes are important and the directors require you to have the implications of the new analysis and also want to convince the major investors for the future benefits.

Financial data for X Greetings

Particulars	**2018-19**	**2017-18**
	KRW in million	KRW in million
Profit after interest and tax (PAT)	55.55	65.38
Interest	15.60	8.00
Opening capital employed	273.58	198.40
Closing capital employed	329.13	273.58
Capital structure	Debt to Equity 40 : 60	Debt to Equity 40 : 60
Costs of capital :	%	%
Equity	14.20	11.50
Debt (pre-tax rate)	8.00	6.00
Tax rate	30	30
Stock market information :		
Average number of shares in issue	3.2 million	3.2 million
Stock market all-share index	1,985	2,561
Retailing sector index	1,155	1,408
X Greetings (share price)	KRW 22.50	KRW 24.40

Required :

ASSESS the performance of X Greetings using Economic Value Added and ANALYSE the result relative to those of earnings per share (EPS) and share price. Assumptions, if any, should be clearly stated.

Solution 9 :

1. **Calculation of EPS and EVA :**

Particulars	2018-19	2017-18
	KRW in million	KRW in million
(a) Calculation of NOPAT :		
Profit after interest and tax	55.55	65.38
Add : Interest net of tax (Int. - 30%)	10.92	5.60
Net Operating Profit after Tax (NOPAT)	66.47	70.98
(b) Calculation of WACC :		
Cost of Equity	14.20%	11.50%
Cost of Debt [Rate x (1 - T)]	5.60%	4.20%
Debt : Equity Ratio	40 : 60	40 : 60
WACC	10.76%	8.58%
(c) Opening capital employed	273.58	198.40
WACC x Op. C.E.	29.44	17.02
EVA [NOPAT - (WACC x CE)]	37.03	53.96
(d) Profit after interest and tax	55.55	65.38
Average number of shares in issue	3.2 million	3.2 million
EPS [PAT / No. of shares]	17.36	20.43

2. **Comments on the performance of X Greetings :**

The performance of X Greetings has gone down since earnings per share is down by 15.03% as compared to last year. This indicates that the company is not doing better financially. However, the share price are down only by 7.79% as compared to the fall in Retailing sector index by 17.97% and the overall stock market down by 22.49%. The sector comparison is more material for the performance of X as stock market all-share index (KOSPI) is composed of data from financial, manufacturing and other industries whereas retailing sector comparison is specific. This implies that the market views X as one of the better prospects within the retailing sector that will encourage the shareholders to continue to hold their shares in the company.

In addition, X Greetings has generated positive EVA for 2018-19 KRW 37.03. EVA of 2018-19 has fallen from 2017-18 but still it remained positive and so the company continues to create value for its shareholders even in the bearish market. It is therefore a good investment option even in a falling market.

Question 10 : [MTP – October, 2019]

LNG Limited has three divisions. Its desired rate of return is 14%. The operating assets and income for each division are as follows :

Divisions	Operating Assets (₹)	Operating Income (₹)
L	19,20,000	3,45,600
N	10,50,000	1,73,250
G	12,30,000	1,67,280
Total	42,00,000	6,86,130

LNG limited has Rs. 8,00,000 of additional cash to invest in one of its divisions. The divisional managers have identified investment opportunities that are expected to yield the following ROIs :

Divisions	Expected ROI for additional investment
L	16%
N	12%
G	15%

Required :

(i) CALCULATE ROIs at present for each division and STATE which division manager is currently providing the highest ROI. (3 Marks)

(ii) Based on ROI, IDENTIFY the division manager who would be the most eager to accept the additional investment funds. (1 Mark)

(iii) Based on ROI, IDENTIFY the division manager who would be least eager to accept the additional investment funds. (1 Mark)

(iv) STATE the division that offers the best investment opportunity for LNG limited. (1 Mark)

(v) DISCUSS the conflict between requirements (ii) and (iv) above. (2 Marks)

(vi) ADVISE how the residual income performance measure could be used to motivate the managers to act in the best interest of the company. (2 Marks)

Answer 10 :

(i) Calculation of present ROI :

ROI = Operating Income / Operating Assets x 100

Division	Operating Income	Operating Assets	ROI
L	3,45,600	19,20,000	18%
N	1,73,250	10,50,000	16.5%
G	1,67,280	12,30,000	13.6%

Presently, Division 'L' Manager is providing highest 18% ROI.

(ii) The manager of division G would be most eager to accept the additional fund of Rs. 8,00,000 because of ROI of the proposed investment of 15% is more than the present ROI of 13.6% and the acceptance of the proposal would increase the division's overall ROI.

For other two divisions, the expected ROI is lower than their present ROI.

(iii) The managers of division L and N, both would be reluctant to invest the additional fund of Rs. 8,00,000 because their return on the proposed project that is 16% and 12% respectively. It is lower than their existing ROI of 18% and 16.5% respectively. However, the manager of division N would be least likely to accept the additional investment because the gap in the present ROI and proposed ROI is highest 4.5%.

(iv) Division L offers the best investment opportunity of 16% for LNG limited for new investment. Because, 16% is the highest ROI on proposed investment.

(v) The managers are forced to choose between their personal best interests and the best interests of the company as a whole. When faced with decisions such as these, many managers choose to benefit themselves at the expense of their company, a condition described as sub optimisation.

(vi) To avoid sub optimisation, the divisional performance measure should be based on Residual Income (RI) method. If RI method is used to measure the performance, then the managers will be encouraged not only to act in their own best interests, but also to act in the best interests of the company. Since, the use of RI does not penalise investment in projects with lower returns than current project returns.

Residual Income (RI) = Operating Income - Expected cost of capital on investment

In general, when RI is used as a performance measure, managers are willing to invest in any projects with returns equal to or greater than the required rate of return. However, RI suffers from the disadvantages of being an absolute measure, which means that it is difficult to compare the performance of a division with that of other divisions of a different size.

Question based on Building Block Model

Question 11 : [MTP October, 2020 + Case Study Digest of ICAI]

The Soup Ltd. offers a range of beauty parlor services like hair care, body care, manicures / pedicures, skincare, etc. It has 150 centre/s across the country. The business of beauty parlor is extremely competitive in all region. Each centre operates autonomously and managers are able to offer customize services.

Soup's mission statement is "to inspire and enhance beauty by using knowledge and experience". To establish long term relationship of trust and commitment with clients, Soup wants to provide their client highest level of satisfaction with emphasis on :

- Service Customization
- Professionalism, Work, and Clinical Responsibility
- Client's Feedback

Company has developed a website where it creates blogs, post high quality content related to beauty tips. Website is also connected to social media to reach customers. If a customer searches Soup's services on search engine, it automatically redirects to the place of nearest service center. Soup's all services are presently booked through online channel.

Results for one of the center, "Roop", are given below. The column headed "Centre" shows the average figures for all Centre/s :

Particulars	Roop (Oct. 20)	Centre (Oct. 20)
Revenue (₹)	91,26,000	1,08,66,900
Gross Profit (₹)	48,50,400	51,37,740
Number of senior Beauticians	90	110
Number of junior Beauticians	60	55
Number of website hits	15,010	19,260
Total number of services booked online and completed	9,915	12,270
Number of services taken by repeat customers	1,510	1,605
Total time spent on completing jobs (hours)	24,120	25,880
Number of new service packages offered	3	2
Customer % in terms of feedback forms showing score of 9 or 10	86%	77%

Notes :

(1) Beauticians are categorized as 'senior' if they have been qualified for more than three years.

(2) 'Junior' Beauticians includes both trainee beauticians and beauticians who have been qualified for less than three years.

(3) The Roop launched three new service packs during the year :

- free coupon of worth ₹ 600 for services over and above ₹ 1,200
- a head massage costing only ₹ 240, instead of the usual ₹ 480, for 10 days advanced booking.
- for a haircut ₹ 120 will be charged, which usually costs ₹ 360, for all customers booking hair spa.

These three new service packs produced revenues of ₹ 7,92,000; ₹ 6,96,000 and ₹ 6,48,000 respectively. Two comparable new service packs developed by other centre/s produced revenues of ₹ 5,28,000 and ₹ 5,04,000.

(4) Customers to rate the particular centre from 1 to 10 in an online feedback form with 10 being the best.

The Chief Executive Officer (CEO) of Soup has recently attended a webinar and heard about Building Block Model of Performance Management. The CEO is interested to know how the dimensions block could be applied at Soup Ltd.

Required :

(i) Analyse Roop's performance relative to the other Centre/s. (12 Marks)

(ii) Explain how the Standards and Rewards blocks support the Dimensions block in case of Building Block Model. (8 Marks)

Solution 11 :

(i) Analysis :

Competitiveness

Particulars	Roop	Centre Average
Website hits converted into orders (in percentage)	66.06% (9,915/15,010)	63.71% (12,270/19,260)

This ratio shows whether Roop's services are attractive compared to its competitors, which is essential if it is going to persist in such a competitive market.

It has performed considerably better than Centre average, having converted 66.06% of website hits into jobs, compared to the 63.71% converted by other Centres. This is a good outcome.

Financial Performance

Particulars	Roop	Centre Average
Gross profit ratio (in percentage)	53.15% (48,50,400/91,26,000)	47.28% (51,37,740/1,08,66,900)

Gross profit ratio is a measure of financial performance. It indicates the percentage of revenue which exceeds the cost of goods sold.

Roop's gross profit ratio is 5.87% higher than the average, which is a good result. This could be because of new service pack sales. It is also likely to be because of ratio of senior beauticians to junior beauticians (1.5 times), which is lower than the average (2 times) and junior beauticians will invariably be paid less than senior ones.

Quality of Service

Particulars	Roop	Centre Average
Jobs from repeat customers (in percentage)	15.23% (1,510 / 9,915)	13.08% (1,605 / 12,270)

Quality is a key aspect of Roop's service to customers and if it is poor, customers will not return.

Again, Roop has surpassed the other centres on average by 2.15% points. Though, it has a lower ratio of senior beauticians to junior beauticians (1.5 times), than the average (2 times), it might be possible that Roop has a portfolio of enthusiastic staff. So, the quality of work is probably better, thus higher level of repeat customers.

Flexibility

Particulars	Roop	Centre Average
Time taken per job (in hours)	2.43 (24,120 / 9,915)	2.11 (25,880 / 12,270)

The comparison shows that Roop takes longer time to complete a job than the other center average, which is not really good and is probably because of they have slightly less experienced staff on the whole. However, it could also be that they do a more comprehensive job than other centers. Given the fact that they have a higher % of repeat customers than the other centers and they are also graded 9 or 10 by most of the customers (86%). Therefore, this cannot be viewed as too adversely.

Resource Utilisation

Particulars	Roop	Centre Average
Revenue per beautician (in rupees)	60,840 (91,26,000 / 150)	65,860 (1,08,66,900 / 165)

The crucial resource in a service company is its staff and so these indicators measure how this resource is being utilised.

Roop's utilisation of its staff is lower than that of the other centers by ₹ 5,020 per beautician. This clearly links in with the point that the average time to complete a job is longer at Roop than other centers. However, given that Roop uses a slightly less experienced staff than other centers and the fact that its gross margin is higher than the average, this should not be viewed too adversely.

Innovation

Particulars	Roop	Centre Average
Revenue generated from new service packs (in percentage)	23.4% [(7,92,000 + 6,96,000 + 6,48,000) / 91,26,000]	9.5% [(5,28,000 + 5,04,000) / 1,08,66,900]

Roop is offering a wide variety of service packs to its customers. The ratio of 23.4% indicates that Roop has really outperformed other centers on this front, generating a far larger part of its revenue by the introduction of new service packs, which must have attracted customers. This is a really good performance.

(ii) The **Standards** block fixes the target for the performance indicators chosen for each of the dimensions. The targets must meet three criteria i.e. they must be achievable, fair and encourage employees to take ownership. The performance of the organisation could suffer if the targets set do not meet these criteria.

The **rewards** block makes sure that employees are motivated to attain the standards. It also examines the properties of good reward schemes which are that they should be clear, motivating and based on controllable factors.

If standards and rewards are set appropriately, the staff will be engaged and motivated and it is then more likely that the goals, i.e. **dimensions** of the organisation will be achieved.

Question based on Non Financial Performance Measures

Question 12 : [ICAI Module]

Lite automobile limited (LAL) is one of leading automobile assembly part manufactures of the country. In order to manage the performance of LAL, the CMD in latest board meeting shown his willingness to apply non-financial performance indicators (NFPI) in addition to financial performance indicators.

CEO conducts meeting thereafter with functional heads. Some of the functional heads are concerned with the scope of the NFPI as part of performance management system. During the meeting Chief HR Lead of company raise his concern over the utility of NFPI to monitor and control the human resource. Chief Operating Officer also raise his concern on the manner how NFPI can ensure quality in the products and services. Chief Public Relation Officer also concerned how NFPI will improve the brand equity.

Required :

Office of CEO hired you as management consultant, for designing and effective implementation of performance management system which also consider NFPI. CEO asked you to briefly EXPLAIN the scope of non-financial performance indicators in regard to only 3 functions whose functional heads raised the concern.

Solution 12 :

The performances management system, which also consider non-financial performance indicators in addition to financial performance indicators; capable to ensure sustainable performance in all functional areas; hence its scope is organisation wide. In regard to three functional areas specifically mentioned in the case scope shall be –

Human resources

It is the people who actually create the organisation through processes, hence human resources are a significant element of any organisation. If they performance well, the entire organisation automatically performs well; hence measures such as staff turnover, absenteeism, job satisfaction, and offer letter accepted shall be part of.

Quality of product and service

What make any business distinct from others, it is largely the value which it's products or services capable to create for the consumers; quality is important determinant of value. Hence, the following performance measures (owning to quality) can be part of performance metrics-

- How much value the product is creating currently?
- Where do product offer in comparison that of competitor?
- Is product capable to generate further superior performance and scope of innovation?

Brand equity

Non-financial performance measures consider the brand equity (value of the brand) as one of the significant performance measures. Brand value is largely based upon factors like customer's awareness & loyalty which includes consumer behaviour also perceived quality, stakeholders' expectation and organisation ability to meet them, and factors like patents and trademarks etc.

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9 DIVISIONAL TRANSFER PRICING

Question 1 : [ICAI Website]

Case Study : RELEVANT COST CONCEPT, TRANSFER PRICING & COQ

About Aditya Group

Aditya Group was established in 1975, manufactures and sells electronic personal grooming and beauty products. The group has two 100% subsidiaries AUS Ltd. and ANZ Ltd. AUS Ltd. manufactures luxury products that cater to niche customers who prefer specialized personal grooming and beauty care. ANZ Ltd. caters to regular daily beauty and grooming requirements that has a wide reach within the market. Factories of both companies are located within India. The products are sold to wholesalers, who supply these products to the retail market.

Aditya Group purchases its raw material requirements from both domestic and overseas markets. Additionally, certain products manufactured by AUS Ltd. can be enhanced based on the products manufactured by ANZ Ltd. Therefore, as per production requirements, AUS Ltd. sources some product components from ANZ Ltd.

Aditya Group has a centralized decision making set-up. Basic policy decisions for functions such as production planning, sales and client relationship, finance and human resources are handled at the group level. Individual units AUS Ltd. and ANZ Ltd. concentrate on the manufacturing alone.

About You

You are an Assistant Manager in Finance and Accounts department of Aditya Group, headed by Director- Finance Ms. Elsea. You assist and report to Ms. Fiona, Manager of your department. Sometime you also assist Director Finance in analysing financial and non-financial information, drafting reports for board meetings, preparation of presentation and staff trainings.

Business Situation- 1

Yesterday, 5.15 P.M.

You got an email from Ms. Elsea, with Cc to Ms. Fiona. Ms. Elsea, asked you to prepare a cost statement for making a quotation to a new customer. She has also informed you that the customer can also maintain a long- term business relation with us. You have been requested to gather information related to the specification from Sales Manager.

Yesterday, 5.25 P.M.

You have been called by Ms. Fiona, and provided the product specification received from Sales Manager for which quotation has to be given. Ms. Fiona has also requested you to gather relevant information to prepare cost statement. Due to the expected long term business relationship that AUS Ltd. wants to have with the customer, the sales manager wants to quote the lowest possible price. AUS Ltd. currently has some spare capacity that can be utilized to cater to this entire order. Therefore, only the relevant cost to AUS Ltd. has to be considered to arrive at the quote.

After meeting with your reporting officer, you mailed to various concerned department and requested for data.

The following information has been obtained in relation to the contract:

Today, 10.05 A.M.

You got an e-mail from Production Manager, it has been informed that 40 tonnes of material Dx would be required. This material is in regular use by AUS and has a current purchase price of ₹ 380 per tonne. Currently, there are 5 tonnes in inventory which cost ₹ 350 per tonne. The resale value of the material in inventory is ₹ 240 per tonne.

Further, with regards to components, it has been informed that 4,000 components would be required. These could be bought externally for ₹15 each or alternatively they could be supplied by ANZ Ltd. The variable cost of the component if it were manufactured by ANZ Ltd. would be ₹ 8 per unit. ANZ Ltd. has sufficient capacity to produce 2,500 components without affecting its ability to satisfy its own external customers. However, in order to make the extra 1,500 components required by AUS Ltd., ANZ Ltd. would have to forgo other external sales of ₹ 50,000 which have a contribution to sales ratio of 40%.

To have uniformity in the quality of the component, it is assumed that AUS Ltd. would procure its entire requirement of 4,000 components either externally or from ANZ Ltd. The transfer pricing policy of Aditya Group for sales between units aims at goal congruence. The unit selling the goods would be allowed to charge any opportunity cost on account of catering to internal demand, while the purchasing unit should ensure that the company is not at a loss.

Today, 10.45 A.M.

You got an e-mail from Personnel Manager, it has been informed that 2,000 high skilled labour hours would be required. The grade of labour required is currently paid ₹ 5 per hour. Highly skilled labour is in short supply and cannot be increased significantly in the short-term. This labour is presently engaged in meeting the, demand for product 'G', which requires 4 hours of highly skilled labour. The contribution from the sale of one unit of product G is ₹ 24.

It has also been informed that the contract would require a specialised machine. The machine could be hired for ₹ 15,000 or it could be bought for ₹ 50,000. At the end of the contract if the machine were bought, it could be sold for ₹ 30,000. Alternatively, it could be modified at a cost of ₹ 5,000 and then used on other contracts instead of buying another essential machine that would cost ₹ 45,000. The operating costs of the machine are payable by AUS whether it hires or buys the machine. These costs would total ₹ 12,000 in respect of the new contract.

Supervisor

The contract would be supervised by an existing manager who is paid an annual salary of ₹ 50,000 and has sufficient capacity to carry out this supervision. The manager would receive a bonus of ₹ 5,000 for the additional work.

Development Time

15 hours of development time at a cost of ₹ 30,000 have already been worked in determining the resource requirements of the contract.

Fixed Overhead Absorption Rate

AUS uses an absorption rate of ₹ 20 per direct labour hour to recover its general fixed overhead costs. This includes ₹ 5 per hour for depreciation.

Today, 11.15 A.M: Ms. Fiona called you in her place as asked you the following:

Required :

(i) CALCULATE the relevant cost of the contract to AUS. You must present your answer in a schedule that clearly shows the relevant cost for each of the items identified above. You should also EXPLAIN each relevant cost you have included in your schedule and why any values you have excluded are not relevant. Ignore taxation and the time value of money.

(ii) DISCUSS two problems that can arise as a result of setting prices using relevant costing.

Business Situation- 2

Today, 5.26 P.M: A memo from Managing Director of the group has been circulated to all officers of the group which stated *"My objective for the forthcoming year is to reduce our quality costs in each of the primary activities in our value chain".* The company is keen to build a reputation for quality and gives a five year guarantee with all of its products.

Today, 5.37 P.M: Ms. Fiona, called you in her place and asked the following:

Required :

(iii) EXPLAIN, by giving examples, how each of the four types of quality cost could be reduced. You should also IDENTIFY in which primary activity each one of your examples would occur in Aditya Group's value chain.

Solution 1 :

(i) Statement Showing Relevant Cost

Type of Cost	Explanation	Amount (₹)
Material Dx (40 tonnes × ₹ 380)	1	15,200
Components	2	52,000
Direct labour (2,000 hrs. × ₹ 11)	3	22,000
Specialist machine	4	10,000
Machine operating cost	5	12,000
Supervision cost	6	5,000
Development time	7	Nil
General fixed overhead	8	Nil
Total relevant cost		1,16,200

Explanation

1. Material Dx is in regular use by AUS Ltd. and must be replaced. Consequently, its relevant value is its replacement cost. The historical cost is not relevant because it is a past cost and the resale value is not relevant because AUS Ltd. is not going to sell it because the material is in regular use.

2. AUS Ltd. would like to procure 4,000 components either from ANZ Ltd. or externally from the market. At the current production level, ANZ Ltd. (seller) has available capacity to accommodate part of AUS Ltd's request to the extent of 2,500 components. At this point,

ANZ Ltd. would be operating at its maximum capacity. To cater to the remaining demand of 1,500 units from AUS Ltd., ANZ Ltd. has to forego external sales of ₹ 50,000 of its own customers. Given that the contribution to sales ratio is 40%. Therefore, ANZ Ltd. has to forego contribution of ₹ 20,000 (i.e. 40% of 50,000) in order to cater to AUS Ltd.'s request. Fixed cost at ANZ Ltd. is irrelevant, since it would be incurred irrespective of whether AUS Ltd.'s order is received or not.

Therefore, in the spirit of goal congruence, the transfer price that ANZ Ltd. would charge AUS Ltd. would be the variable cost of ₹ 8 per unit and ₹ 20,000 towards opportunity cost as explained above. Therefore, the transfer price shall be -

= (8 per unit x 4,000 components) + 20,000

= 32,000 + 20,000 = ₹ 52,000 for 4,000 components

However, if the components are purchased from outside, then the cost would be ₹ 60,000 (i.e. 15 per unit x 4,000 components). In the interest of goal congruence the cheaper option is preferred. Hence, AUS Ltd. should source its components from ANZ Ltd, for a total procurement cost of ₹ 52,000.

3. Skilled labour is in short supply and can only be obtained by reducing the production of product 'G', resulting in a loss of contribution of ₹ 24 per unit or ₹ 6 per hour of skilled labour. Hence the relevant labour cost will be ₹ 6 (contribution lost per hour) + ₹ 5 (hourly rate of skilled labour) i.e. ₹ 11 per hour.
4. AUS Ltd. has a number of options: (a) If the machine were to be hired it would cost ₹ 15,000; (b) if the machine were bought and then sold at the end of the work it would have a net cost of ₹ 20,000 (i.e. 50,000 - 30,000); or (c) if the machine were bought and then modified to avoid the need to buy the other machine it would have a net cost of ₹ 10,000 (i.e. ₹ 50,000 purchase cost plus ₹ 5,000 modification cost less ₹ 45,000 savings in cost of another machine). Thus, the most economic approach is to buy the machine and then modify it. So the relevant cost is ₹ 10,000.
5. The machine operating costs are future costs of doing the work and therefore are relevant.
6. The supervisor's salary is irrelevant because it is a committed cost. But the bonus needs to be included because it is dependent on this work and therefore is relevant.
7. The development time has already been incurred. Therefore, it is a sunk cost and not relevant.
8. General fixed overhead costs and their absorption are not relevant because they will be incurred whether the work goes ahead or not. It is a common cost and not specific cost. Depreciation is also not relevant because it is an accounting entry based on the historical purchase of assets. It is not affected by the work being considered.

(ii) Two main issues will arise when pricing is based on relevant costs:

- Profit reporting; and
- Pricing of future work.

For reporting purposes, we generally use total historical cost concept. Hence, profit calculated on this work may not match with the relevant cost approach. In the books of accounts, this work may even report a loss. This may cause difficulties for the manager who accepted the work, as an explanation will be required of the reasons why there is such a difference in profit.

With regard to the pricing of future work, the difficulty lies in increasing the price for similar items for the same customer in future. Once a price is set, customers tend to expect that any future items will be priced similarly. However, where a special price has been offered based

on relevant cost because of the existence of spare capacity, the supplier will not be able to offer the same price on continuous basis, as it does not recover its long term total costs. There may also be difficulties created by this method of pricing, as other customers are being charged on a full cost basis and if they were to discover that a lower price was offered to a new customer, they would feel that their loyalty was being penalised.

(iii) Reduction in Cost of Quality :

Prevention Cost -

Operations: Preventive maintenance and checking of the calibration of machinery. This would reduce the number of potentially faulty products being produced and therefore reduce guarantee claims.

Appraisal Cost -

Inbound Logistics: Reduce costs of incoming inspections by building close links with suppliers and getting them to adopt TQM. If suppliers can guarantee their quality, then inbound inspections could be eliminated.

Internal Failure Cost -

Operations: Reduce costs of re-works by training employees on a continual basis e.g. quality circles. This would reduce failure costs and also improve quality.

External Failure Cost -

Service: Design quality into the product to try to prevent guarantee claims and therefore the cost of servicing / repairing the product.

Question 2 : Case Study

Global Multinational Ltd. (GML) has two Divisions 'Dx' and 'Dz' with full profit responsibility. The Division 'Dx' produces Component 'X' which it sells to 'outside' customers only. The Division 'Dz' produces a product called the 'Z' which incorporates Component 'X' in its design. 'Dz' Division is currently purchasing required units of Component 'X' per year from an outside supplier at market price.

New CEO for Indian Operations has explored that 'Dx' Division has enough capacity to meet entire requirements of Division 'Dz' and accordingly he requires internal transfer between the divisions at marginal cost from the overall company's perspective.

Manager of Division 'Dx' claims that transfer at marginal cost are unsuitable for performance evaluation since they don't provide an incentive to the division to transfer goods internally. He stressed that transfer price should be 'Cost plus a Mark-Up'.

New CEO worries that transfer price suggested by the manager of Division 'Dx' will not induce managers of both Divisions to make optimum decisions.

Required :

You are requested to help him to resolve the problem.

Solution 2 :

To overcome the optimum decision making and performance evaluation conflicts that can occur with marginal cost based transfer pricing following methods has been proposed:

1. Dual Rate Transfer Pricing System

"With a 'Dual Rate Transfer Pricing System' the 'Receiving Division' is charged with marginal cost of the intermediate product and 'Supplying Division' is credited with full cost per unit plus a profit margin".

Accordingly Division 'Dx' should be allowed to record the transactions at full cost per unit plus a profit margin. On the other hand Division 'Dz' may be charged only marginal cost. Any inter divisional profits can be eliminated by accounting adjustment later on.

Impact :

- Division 'Dx' will earn a profit on inter-division transfers.
- Division 'Dz' can choose the output level at which the marginal cost of the product 'X' is equal to the net marginal revenue of the product 'Z'.

2. Two Part Transfer Pricing System

"The 'Two Part Transfer Pricing System' involves transfers being made at the marginal cost per unit of output of the 'Supplying Division' plus a lump-sum fixed fee charged by the 'Supplying Division' to the 'Receiving Division' for the use of the capacity allocated to the intermediate product."

Accordingly Division 'Dx' can transfer its products to Division 'Dz' at marginal cost per unit and a lump-sum fixed fee.

Impact :

- 'Two Part Transfer Pricing System' will inspire the Division 'Dz' to choose the optimal output level.
- This pricing system also enable the Division 'Dx' to obtain a profit on inter-division transfer.

PROBLEM 3 :

The two manufacturing divisions of a company are organised on profit centre basis. Division X is the only source of a component required by Division Y for their product 'P'. Each unit of P requires one unit of the said component. As the demand of the product is not steady, orders for increased quantities can be obtained by manipulating prices. The manager of Division Y has given the following forecast:

Sales Per day (Units)	Average price per unit of P (Rs.)
5,000	393.75
10,000	298.50
15,000	247.50
20,000	208.50
25,000	180.00
30,000	150.75

The manufacturing cost (excluding the cost of the component from Division X) of P in Division Y is Rs.14,06,250 on first 5,000 units and Rs.56.25 per unit in excess of 5,000 units.

Division X incurs a total cost of Rs.5,62,500 per day for an output up to 5,000 components and the total costs will increase by Rs. 3,37,500 per day for every additional 5,000 components manufactured. The manager of Division X has set the transfer price for the component at Rs. 90 per unit to optimize the performance of his Division.

Required :

(i) Prepare a divisional profitability statement at each level of output, for divisions X and Y separately;

(ii) Find out the profitability of the company as a whole at the output level where :

(a) Division X's net profit is maximum.

(b) Division Y's net profit is maximum.

(iii) Find out at what level of output, the company will earn maximum profit, if the company is not organized on profit centre basis.

ANSWER 3 :

Statement showing divisional overall profitability at different sales volume per day –

Particulars	Sales per day					
	5,000	10,000	15,000	20,000	25,000	30,000
a. Sales revenue of division X @ Rs. 90 / units	4,50,000	9,00,000	13,50,000	18,00,000	22,50,000	27,00,000
b. Cost incurred in X	5,62,500	9,00,000	12,37,500	15,75,000	19,12,500	22,50,000
c. Profit / (Loss)	(1,12,500)	--	1,12,500	2,25,000	3,37,500	4,50,000
d. Average sales price / unit of P in division Y	393.75	298.50	247.50	208.50	180.00	150.75
e. Total revenue of division Y	19,68,750	29,85,000	37,12,500	41,70,000	45,00,000	45,22,500
f. Cost incurred in division Y (excluding cost of component from X)	14,06,250	16,87,500	19,68,750	22,50,000	25,31,250	28,12,500
g. Profit / (loss) of division Y (e – f – a)	1,12,500	3,97,500	3,93,750	1,20,000	(2,81,250)	(9,90,000)
h. Total profit /(loss) of the co. overall (c + g)	--	3,97,500	5,06,250	3,45,000	56,250	(5,40,000)

(i) Profitability of division X is given in point (c) above and of division Y is in point (g) above

(ii) (a) Maximum Profitability of division X is 30,000 units per day, however there is an overall loss to the company amount to Rs. 5,40,000 at this level.

(b) Maximum Profitability of division Y is 10,000units per day and the profitability of the company as a whole Rs. 3,97,500.

(iii) The overall profit of the company is maximum Rs. 5,06,250 at on output level of 15,000 units per day.

PROBLEM 4 :

Division Z is a profit centre, which produces four products – A, B, C and D. Each product is sold in the external market also. Data for period is as follows:

Particulars	A	B	C	D
Market Price Per Unit (Rs.)	150	146	140	130
Variable cost of Production per unit (Rs.)	130	100	90	85
Labour Hours Required per Unit	3	4	2	3

Product D can be transferred to division Y, but the maximum quantity that might be required for transfer is 2,500 units of D.

The maximum sales in the external market are :

A	2,800 Units;	B	2,500 Units;
C	2,300 Units	D	1,600 Units.

Division Y can purchase the same product at a slightly cheaper price of Rs. 125 per unit instead of receiving transfers of product D from Division Z.

What should be transfer price for each unit for 2,500 units of D, if the total labour hours available in division Z are : (i) 20,000 hours ? (ii) 30,000 hours?

ANSWER 4 :

Ranking of products when availability of time is key factor

Product	A Rs.	B Rs.	C Rs.	D Rs.
Market Price per unit	150	146	140	130
(-) Variable cost of production/unit	130	100	90	85
Contribution per unit	20	46	50	45
Labour hrs required/unit	3	4	2	3
Contribution per hours	6.66	11.5	25	15
Ranking	**IV**	**III**	**I**	**II**

Final Answers are : **Product Mix using 20,000 hours**

Product mix	Units produced
A	200
B	2,500
C	2,300
D	1,600

Transfer price of Product D = Variable cost of D + Opportunity Cost

= [(2,500 units x Rs.85) + (200 x 20) + (1,725 x 46)] / 2,500 units

= Rs. 118.34/unit

Product mix using 30,000 hours

Product mix	Units produced
A	2,800
B	2,500
C	2,300
D	1,600

Balance hours 2,200 hrs. are utilised for internal demand of product D

Transfer price of Product D = Variable cost of D + Opportunity Cost

= [(2,500 units x Rs. 85) + (1,766.67 units x 20)] / 2,500 units

= Rs. 99.136 / unit

PROBLEM 5 :

Department X is a profit centre, manufacturing products VX, XL, and XT. Each of the products can be sold in the outside market to the extent of the following:

VX : 900 units, XL : 300 units, XT : 600 units.

Market price per unit is Rs. 24, Rs. 23 and Rs. 20 for VX, XL and XT respectively. Other details are given below :

Products	VX (Rs.)	XL (Rs.)	XT (Rs.)
Variable cost of production	17	12	14
Labour Hours required	3	2	4

Product VX can be transferred to department Y, but the maximum quantity that might be required for transfer is 400 units of VX, The Manager of department Y has powers to buy the product VX from the external market at a much cheaper price of Rs. 22.

What should be the transfer price per unit for 400 units of VX, if the total labour hours available in Department X is -

(a) 4,800 hours, and

(b) 6,200 hours ?

ANSWER 5 :

Computation of transfer price for each unit of VX, if total labour hours available in Department X are 4,800 hrs. -

Statement for contribution & Ranking

Particulars	VX(Rs.)	XL(Rs.)	XT(Rs.)
a) Sales price	24	23	20
b) Variable cost	17	12	14
c) Contribution (a – b)	7	11	6
d) Labour hours / unit	3	2	4
e) Contribution /hr. (c/d)	2.33	5.5	1.5
Ranking	II	I	III

Allocation of 4,800 hours

Product	No. of Units	Hrs./Unit	Totai Hours	Balance Hours
			4,800	4,800
XL	300	2	600	4,200
VX	900	3	2,700	1,500
XT	375	4	1,500	NIL

For 400 units of Product VX, labour hours required = 400 units x 3 hrs.= 1,200 hrs.
Opportunity Cost for 1,200 hrs. due to the curtailment of XT = 1,200 hrs. x 1.5 = Rs. 1,800
Hence, Opportunity cost for Product VX per unit = Rs.1,800/400units = Rs. 4.5
Transfer Price for 400 units of VX = Variable cost + Opportunity cost = Rs. (17 + 4.5) = Rs. 21.50

Computation of transfer price for each unit of VX, if total labour hours available in Department X are 6,200 -

Hours required to meet the present outside market requirements 5,700
Remaining hours used for producing 400 units of VX (6,200 – 5,700) 500
Total hours required for 400 units of VX = 400 units x 3 hrs. = 1,200 hrs.
Less : Hours already available = 500 hrs.
Balance hours required for extra production = 700 hrs.
Hence, Opportunity cost for 700 hours due to the curtailment of XY = 700 hrs.x 1.5 = Rs.1,050
Hence, Opportunity cost for Product VX per unit = Rs.1,050/400 units = Rs. 2.625
Transfer Price for 400 units of VX = Variable cost + Opportunity cost
= Rs. (17 + 2.625) = Rs.19.625

PROBLEM 6 :

A Company is organized into two divisions. Division X produces a component, which is used by division Y in making of a final product. The final product is sold for Rs. 540 each. Division X has capacity to produce 2,500 units and division Y can purchase the entire production. The variable cost of division X in manufacturing each component is Rs. 256.50.

Division X informed that due to installation of new machines, its depreciation cost had gone up and hence wanted to increase the price of component to be supplied to division Y to Rs. 297, however division Y can buy the component from the outside market at Rs. 270 each. The variable cost of division Y in manufacturing the final product by using the component is Rs. 202.50 (excluding component cost.).

Present the statement indicating the position of each Division and the company as whole taking each of the following situations separately:

(i) If there is no alternative use for the production facility of X, will the company benefit, if division Y buys from outside suppliers at Rs. 270 per component?

(ii) If internal facilities of X are not otherwise idle and the alternative use of the facilities will bring annual cash saving of Rs. 50,625 to division X, should division Y purchase the component from outside suppliers?

(iii) If there is no alternative use for the production facilities of division X and the selling price for the component in the outside market drops by Rs. 20.25, should division Y purchase from outside supplier?

(iv) What transfer price would be fixed for the component in each of the above circumstances?

ANSWER 6 :

(i) The variable cost of manufacture within the company is Rs. 256.50 as against the outside purchase price of Rs.270. Hence, it is advisable for the company not to buy from outside market but to procure the requirement from division X only. The net benefit to the company shall be Rs. 33,750 i.e. [(270 – 256.50) x 2,500 units].

(ii) If internal facilities of X are not otherwise idle and the alternative use of the facilities will bring an annual cash saving of Rs. 50,625 to division X, then division Y should purchase the component from outside suppliers. This will provide a net benefit to the company of Rs. 16,875 i.e. [50,625 saving – 33,750 extra cost of purchase].

(iii) If there is no alternative use for the production facilities of division X and the selling price for the component in the outside market drops by Rs. 20.25, then division Y should purchase from outside supplier. Because, the cost of purchase from outside supplier will be Rs. 249.75 [i.e. 270 – 20.25], which is lower than the variable cost of internal production.

(iv) Fixation of Transfer Price in each above circumstances :

(a) When there is no alternative use for the production facility of X, then the transfer price should be the variable cost of production i.e. Rs. 256.50.

(b) When there is an alternative use for the production facility of X, then the transfer price should be the variable cost of production plus opportunity cost. i.e. Rs. 256.50 + 20.25 (50,625 / 2,500 units) = Rs. 276.75.

(c) Even if the outside market price gets reduced, division X cannot transfer the components below its variable cost. Hence, transfer price shall be Rs. 256.50.

PROBLEM NO. 7 :

Tripod Ltd. has three divisions - X, Y and Z, which make products X, Y and Z respectively. For division Y, the only direct material is product X and for Z, the only direct material is product Y. Division X purchases all its raw material from outside. Direct selling overhead, representing commission to external sales agents are avoided on all internal transfers. Division Y additionally incurs Rs.10 per unit and Rs. 8 per unit on units delivered to external customers and Z respectively. Y also incurs Rs. 6 per unit picked up from X, whereas external suppliers supply at Y's factory at the stated price of Rs. 85 per unit.

Additional information is given below:

Particulars	X	Y	Z
Direct materials (external supplier rate)	40	85	135
Direct labour	30	50	45
Sales Agent's commission	15	15	10
Selling price in external market	110	170	240
Production capacity (in units)	20,000	30,000	40,000
External demand (in units)	14,000	26,000	42,000

You are required to discuss the range of negotiation for Managers X, Y and Z, for the number of units and the transfer price for internal transfers.

ANSWER 7 :

1. Statement of contribution, if the products are sold in the External Market :

Particulars	X	Y	Z
(a) Selling price in external market	110	170	240
(b) Variable Cost per unit :			
Direct materials (external supplier rate)	40	85	135
Direct labour	30	50	45
Sales Agent's commission	15	15	10
Additional delivery cost to Y	--	10	--
Sub-total (b)	85	160	190
(c) Contribution per unit (a – b)	25	10	50

2. Statement of contribution, if transferred internally at maximum possible price :

Particulars	X	Y	Z
(a) External purchase price of input material	--	85	135
(b) Extra cost of picking delivery from 'X'	--	6	--
(c) Maximum affordable price if bought internally [a – b]	--	79	135
(d) Maximum transfer price for supplier division for supplying material as per (c) above	79	135	--

(e) Variable Cost per unit :			
Direct materials	40	85	
Direct labour	30	50	
Additional delivery cost to Y	--	8	
Sub-total (e)	70	143	
(f) Contribution per unit (d – e)	9	(8)	

Range of Negotiation:

On observing the above statements, we can make the following conclusions.

1. Division X should first sell the product in external market, because the contribution from external market is higher than the internal transfer. The external sale shall be to the extent of 14,000 units. The balance capacity left of 6,000 units may be used to transfer the product internally. There is a positive contribution of Rs. 9 per unit on internal transfer at Rs. 79. It can afford to transfer internally at a price range of Rs. 71 to Rs. 79, to generate an incremental contribution.
2. Division Y should sell 26,000 units in the external market only. There is a negative contribution on internal transfer at maximum possible price, hence it is not feasible. Internal transfer for Y is possible only if it's purchase price of input material reduces by more than Rs. 8 per unit.

PROBLEM NO. 8 :

Optical Ltd. makes two kinds products, P (lenses) and Q (swimming goggles) in divisions P and Q respectively. P is an input for Q and two units of P are needed to make one unit of Q.

The following data is given to you for a period :

Particulars	P Rs./unit	Q Rs./unit
Direct Materials	20	25 (excluding P)
Direct Labour	30	35
Variable Overhead	10	20
External Demand (units)	3,000	3,000
Capacity (units)	7,000	2,500
Selling Price Rs./unit (outside market)	100	410

If Q buys P from outside, it has the following costs:

For order quantity 2,499 or less — Rs. 90 per unit for the entire quantity ordered.

For order quantity 2,500 — 5,000 — Rs. 80 per unit for the entire quantity ordered.

For order quantity more than 5,000 — Rs. 70 per unit for the entire quantity ordered.

You are required to:

(i) Evaluate the best strategies for Division P and Q.

(ii) Briefly explain the concept of goal congruence.

ANSWER 8 :

Optical Ltd. manufactures P (lenses) and Q (swimming goggles).
Division P has option to supply to Division Q or sell to outside market.
Division Q has option to buy from Division P or purchase from outside market.
However, both divisions have to work within their individual capacity.
Two units of P are required to manufacture one unit of Q.
Variable Cost for product P in Division P = 20 + 30 + 10 = Rs. 60.
Variable cost for product Q in Division Q (excluding 2 No. of P's) = 25 + 35 + 20 = Rs. 80.

Step 1 :

Division P can sell it's product in the market at Rs. 100 each and the maximum purchase price of P for Dept. Q is Rs. 90. It means, for the organisation, it is better to sell P in the outside market and buy product P from outside for Q division. Hence, we should sell P in the external market first.

Step 2 :

However, the maximum external demand for P is 3,000 units. The surplus capacity left after satisfying external demand = 7,000 – 3,000 = 4,000 units. This surplus capacity must be used to manufacture P for internal transfer, because variable cost of manufacture is Rs. 60 as against lowest purchase price of Rs. 70.

Step 3 :

For division Q, it is profitable to manufacture and sell Q @ Rs. 410. Hence, we should use maximum capacity of Q to earn maximum profit. Maximum capacity of Q is 2,500 units, which will need 5,000 units of P (i.e. 2,500 x 2). However, division P can supply only 4,000 units as per Step 2 above. Hence, division Q should buy balance 1,000 units from outside at a purchase price of Rs. 90.

(i) Maximum profit of the organization at above decision shall be :

Particulars	Rs.	Rs.
(a) Sales Revenue :		
Product P : 3,000 units x Rs. 100	3,00,000	
Product Q : 2,500 units x Rs. 410	10,25,000	13,25,000
(b) Variable Costs :		
Product P for external sale : 3,000 units x Rs. 60	1,80,000	
Product P for internal transfer : 4,000 units x Rs. 60	2,40,000	
Product P purchased from outside : 1,000 units x Rs. 90	90,000	
Product Q (excluding P) : 2,500 units x Rs. 80	2,00,000	7,10,000
(c) Total Contribution [a – b]		6,15,000

(ii) Divisions functioning as profit centers strive to achieve maximum divisional profits, either by internal transfers or from outside purchase. However, in order to maximize their individual profits, they may ignore the overall goal of maximization of total profit of the entire organisation. When we advise a division to plan its internal transfer price in such a manner, so that the overall profit of the organisation is maximized, then it is known as goal congruence. But in such case a division at a disadvantage may be given due weightage while appraising it's performance. Goal incongruence defeats the purpose of divisional profit centre system.

Question 9 : [ICAI Module]

A Company has two divisions A and B, making products A and B respectively. One unit of A is an input for each unit of B. B has a production capacity of 45,000 units and ready market. Other information available regarding Division A are :

Capacity (production units)	50,000
Maximum External Sales units	30,000
Fixed costs up to 30,000 units is Beyond 30,000 units; it increases by ₹ 50,000 for every additional 10,000 units	₹ 4,30,000
Variable Manufacturing Cost p.u.	₹ 55
Variable Selling Cost p.u. (for external sales)	₹ 10
Variable Selling Cost p.u. (for special order / transfer to B)	₹ 5
Selling Price p.u. (for external market)	₹ 80
Selling Price (for special sales)	₹ 70

B can buy the input A from outside at a slightly incomplete stage at ₹ 45 p.u. and will incur subcontracting charges of ₹ 30 p.u. to match it to the stage at which it receives goods from Division A. Division B is willing to pay a maximum ₹ 75 p.u. if Division A supplies its entire demand of 45,000 units. If Division A supplies lesser quantity, Division B is willing to pay only ₹ 70 p.u.

Division A has also received a special order for 15,000 units which it needs to either accept in full or reject. Division A may choose to avoid variable selling cost of ₹ 5 p.u. on transfer to B or on special order, by incurring a fixed overheads of ₹ 50,000 p.a. instead.

Required :

(i) What is the best strategy for Division A? Show the profitability of that option.

(ii) What will be the range of transfer price, if the best strategy is chosen?

Answer 9 :

(i) What is the best strategy for division A?

With a production capacity of 50,000 units, Division A has to find an optimum mix of sales between external sales, internal transfer to Division B and special order. Division B requires 45,000 units. Division A can supply the entire 45,000 units to Division B for which transfer price is ₹ 75 p.u. or can supply lower quantity for which transfer price is ₹ 70 p.u.

As production increases, certain cost components would also change. Changes to cost of production and selling expenses are discussed below.

(a) Selling expenses : It is given that for special orders or internal transfers, Division A can either bear a variable selling cost of ₹ 5 p.u. or choose to incur a fixed cost of ₹ 50,000 p.a.

Working out the indifference point, the selling cost will be the same at 10,000 units (i.e. = ₹ 50,000 / ₹ 5 = 10,000 units). For any internal transfer or special sale below 10,000 units, it makes sense to bear the variable cost of ₹ 5 p.u. Over 10,000 units it makes sense to bear the fixed cost of ₹ 50,000 p.a.

Even if Division A chooses to cater entirely to external sales of 30,000 units, the balance 20,000 units will be used to cater to either the special order or as internal transfer to Division B or can even be both (i.e. special order 15,000 units and internal transfer 5,000 units). Since in any case, total sale will be more than 10,000 units, Division A can opt to bear the fixed cost of ₹ 50,000 p.a.

(b) Fixed Manufacturing Cost :

ICAI View : Division A is working at full capacity i.e. 50,000 units are produced. Fixed cost shall be ₹ 4,30,000 (for first 30,000 units) and it would increase by ₹ 50,000 for every extra 10,000 units produced over 30,000 units. Hence total fixed cost will be 4,30,000+ 50,000 + 50,000 = ₹ 5,30,000.

My View : In the above view, ICAI has assumed that Division A will produce and sell all the 50,000 units and hence will incur a fixed cost of ₹ 5,30,000.

I feel that one should work out whether producing beyond 30,000 units is profitable for Division A or not, and then take a decision. If incremental contribution beyond 30,000 units is more than incremental fixed cost, then only Division A should produce beyond 30,000 units. It can happen if the incremental contribution is more than ₹ 5 per unit to recover the incremental fixed cost of ₹ 50,000 for every extra 10,000 units produced over 30,000 units.

Note : As the calculations done below justify the production beyond 30,000 units and hence production of all 50,000 units is profitable for Division A. Hence, the final answer with ICAI view and my view will ultimately remain the same.

To arrive at the optimum mix, Division A will calculate the contribution received per unit under the various options as follows :

Particulars	External Sale up to 30,000 units	Special Order 15,000 units	Transfer to B, less than 45,000 units	Transfer to B, all 45,000 units
(a) Selling Price	80	70	70	75
(b) Variable Costs :				
Manufacturing	55	55	55	55
Selling & Dist.	10	0	0	0
(c) Contribution (a) – (b)	15	15	15	20

Decision :

The above calculation indicates that, transfer to division B of 45,000 units yields the highest contribution of ₹ 20 per unit. This leaves a balance capacity of 5,000 units with Division A, whose maximum capacity is given as 50,000 units. This is insufficient to meet the special order of 15,000 units. (Please note that the special order has to be accepted in full or to be rejected).

Hence, Division A will utilize the balance 5,000 units to cater to external sales. Therefore, the optimum production mix would be :

Transfer to Division B 45,000 units and external sales 5,000 units.

Profitability Statement of Division A :

Particulars	Figures in ₹
Contribution from -	
Transfer to Division B (45,000 units x ₹ 20)	9,00,000
External Sales (5,000 units x ₹ 15)	75,000
Total Contribution from Sales	9,75,000
Less : Manufacturing Fixed Cost (as discussed in point 'b' above)	5,30,000
Less : Selling Fixed cost (as discussed in point 'a' above)	50,000
∴ Profit Earned	3,95,000

(ii) Range of transfer price under the best strategy :

As explained above, the best strategy for Division A would be to sell 45,000 units to Division B and 5,000 units externally.

Minimum Transfer price per unit

= Marginal Cost per unit + Additional fixed cost per unit + Opportunity cost per unit

As Discussed above, additional outlay would be the fixed selling cost of ₹ 50,000 that it chooses to incur rather than incur a variable cost of ₹ 5 p.u. If this fixed selling cost is spread over 45,000 units, then the per unit cost would be ₹ 1.11 (₹ 50,000 / 45,000 units)

Had division A not sold 45,000 units to Division B, it would have chosen from any of the other three options viz. (a) selling 30,000 units externally or (b) meeting special order of 15,000 units or (c) transfer of less than 45,000 units to Division B. In all these cases, it would have yielded a contribution of ₹ 15 p.u. This is the opportunity cost for Division A for choosing the best strategy.

Therefore, Minimum Transfer Price that Division A will demand shall be -

= Marginal Cost per unit + Additional fixed cost per unit + Opportunity cost per unit

= ₹ 55 + ₹ 1.11 + ₹ 15 = ₹ 71.11

Maximum Transfer price that Division B is willing to pay is given as = ₹ 75

Hence, the range of transfer price would be between ₹ 71.11 to ₹ 75.

Question 10 : [ICAI Module]

G is the transferring division and R, the receiving division in a company. R has a demand for 20% of G's production capacity which has to be first met as per the company's policy. State with reasons, which division, G or R enjoys more advantage in each of the following independent situations, assuming no inventory built up.

Sr. No.	G Transfers to R at Transfer Price equal to	G's Production level	External Demand	Division having more advantage	Reason
(i)	Full cost : No mark up	60%	40%		
(ii)	Market Price	80%	60%		
(iii)	Marginal Cost	100%	80%		
(iv)	Market Price	100%	90%		

Answer 10 :

Sr. No.	Division having more Advantage	Reason
(i)	G	G is utilizing only 40% of production capacity by selling to 'External Market' which implies that G might have not been able to recover its full fixed costs. By transferring 20% of its production capacity to Division R at full cost, G will be able to recover fixed costs component. Transfer price above marginal cost will lead to an incremental contribution for Division G.
(ii)	G	G will not be losing any external market demand as it is within its production capacity. By transferring 20% of production capacity to division R at market price, G will earn extra contribution towards the fixed costs and profit.
(iii)	R	Here G is operating at 100% Capacity level and external market demand is 80% only i.e. G is not losing any external market demand. But by transferring 20% of production capacity to R at marginal cost i.e. at variable cost, G may not be able to recover fixed cost part of total cost. On the other hand R will be able to get these units at marginal cost only.
(iv)	G	To satisfy 20% demand of R, division G will lose an opportunity to sell in the external market for 10% of its capacity. However, it would be earning the same revenue by transferring the goods to division R at market price. Hence, in fact, there is no opportunity cost to G. Moreover, G will be able to utilize additional 10% of its production capacity to earn an incremental profit on it.

Question No. 11 : [Nov. 2019 Exam]

APC Ltd. has two divisions - Division X and Division Y with full profit responsibility. Division X produces components 'Gex' which is supplied to both division Y and external customers.

Division Y produces a product called 'Gextin' which incorporates component 'Gex'. For one unit of 'Gextin' two units of component 'Gex' and other materials are used.

Till date, Division Y has always bought component 'Gex' from division X at ₹ 50 per unit since the lowest price at which the component 'Gex' could have been bought by Division Y was ₹ 52 per unit.

Division X charges the same price for component 'Gex' to both division Y and external customers. However, it does not incur selling and distribution costs when transferring internally.

Division Y has received a proposal from a new supplier who has offered to supply 'Gex' for ₹ 47 per unit at least for the next three years.

Manager of Division Y requests the manager of Division X to supply component 'Gex' at or below ₹ 47 per unit. Manager of Division X is not ready to reduce the transfer price since the divisional performance evaluation is done based on profit margin ratio of the divisions.

The following additional information is made available to you :

	Component 'Gex'	Product 'Gextin'
	₹	₹
Selling Price per unit	50	180
Less: Variable Costs		
Direct Materials :		
Component 'Gex'	-	100
Other materials	12	22
Direct Labour	16	13
Manufacturing Overhead	2	5
Selling and Distribution Costs	4	2
Contribution per unit	16	38
Annual fixed costs	₹ 40,00,000	₹ 20,00,000
Annual external demand (units)	3,00,000	1,20,000
Capacity of plant (units)	5,00,000	1,50,000

Required :

(i) Calculate the present profit of each division and the company as a whole. [2 Marks]

(ii) Analyse the impact on the total annual profits of each division and the company as a whole if Division Y accepts the offer of the new supplier. [4 Marks]

(iii) In the changed scenario, discuss why the top management should intervene and advise a suitable transfer price for component 'Gex' for resolving transfer pricing conflict which promotes goal congruence through efficient performance of the concerned division. [4 Marks]

Solution 11 : **APC Ltd.**

Key Information :

Variable cost per unit of 'Gex' for outside sale = 12 + 16 + 2 + 4 = ₹ 34

Variable cost per unit of 'Gex' for internal transfer = 12 + 16 + 2 = ₹ 30

Variable cost per unit of 'Gextin' with internal transfer @ ₹ 50 per unit of 'Gex'

= (50 x 2) + 22 + 13 + 5 + 2 = ₹ 142

Variable cost per unit of 'Gextin' with outside purchase @ ₹ 47 per unit of 'Gex'

= (47 x 2) + 22 + 13 + 5 + 2 = ₹ 136

Division Y can sell only 1,20,000 units of 'Gextin' p.a. in the external market. For which, it will require (1,20,000 x 2) = 2,40,000 units of 'Gex' as input.

In Division X, the total plant capacity is to produce 5,00,000 units of 'Gex'. Out of which, 2,40,000 is assumed to be used for internal supply to Division Y and remaining capacity of 2,60,000 units is used to satisfy the external demand.

(i) Calculation of present profit with internal transfer of 'Gex' :

Particulars	₹	₹
(a) Profit of Division X :		
Contribution from Internal Transfer [2,40,000 units x (50 - 30)]	48,00,000	
Contribution from External Sale [2,60,000 units x (50 - 34)]	41,60,000	
Less : Annual fixed cost	(40,00,000)	49,60,000
(b) Profit of Division Y :		
Contribution from External Sale [1,20,000 units x (180 - 142)]	45,60,000	
Less : Annual fixed cost	(20,00,000)	25,60,000
(c) Total profit of the company [a + b]		75,20,000

(ii) Calculation of profit if Division Y purchases 'Gex' from new supplier :

Particulars	₹	₹
(a) Profit of Division X :		
Contribution from External Sale [3,00,000 units x (50 - 34)]	48,00,000	
Less : Annual fixed cost	(40,00,000)	8,00,000
(b) Profit of Division Y :		
Contribution from External Sale [1,20,000 units x (180 - 136)]	52,80,000	
Less : Annual fixed cost	(20,00,000)	32,80,000
(c) Total profit of the company [a + b]		40,80,000

Comment : As can be observed from the above two calculations, that the overall profit of the company has been reduced by ₹ 34,40,000 due to outside purchase. Hence, outside purchase of 'Gex' is not advisable for the company.

(iii) Intervention of Top Management :

Top management must intervene and resolve the transfer pricing conflict to promote goal congruence. Else, the company will suffer a loss of ₹ 34,40,000.

The minimum transfer price for Division X shall be

= Marginal cost + Opportunity cost (i.e. contribution lost on external sale)

= ₹ 30 + ₹ 16 = ₹ 46 per unit

The maximum price which Division Y can pay is the lower of the following two -

(a) Net incremental revenue

= Sales price - Variable cost excluding internal transfer

= 180 - (22 + 13 + 5 + 2) = ₹ 138 (for 2 units of Gex)

= ₹ 138 / 2 = ₹ 69 per unit of Gex

(b) Outside purchase price

= ₹ 47 per unit of Gex

The lower of the above two is ₹ 47 per unit of Gex.

The top management can easily fix a transfer price between ₹ 46 to ₹ 47 per unit.

This will also ensure the full utilisation of the plant capacity of Division X and will improve overall profit of the company.

Question 12 : [RTP – Nov. 2019]

A manufacturer has two divisions. Division A and Division B. Division B produces components that are used by both Division A as well as external customers. Division A gets its entire requirement of the components from Division B.

The annual production capacity of Division B is 1,00,000 units. The division operates at full capacity, with no inventory at the beginning and end of the year. It sells its components to external customers at ₹ 4,000 per unit. Variable cost of production for the component is ₹ 2,750. Internally, it transfers it components to Division A factoring any opportunity cost in the form of lost sales. Total sales of Division B were ₹ 36 crores of which sales to external customers was ₹ 20 crores.

As per company policy, demand from Division A has priority over external customers. This year, there was an additional demand from external customers for 18,000 components. However, since Division B operated at full capacity, this demand was not catered to.

Required :

(i) ANALYZE the Sales in terms of Rupees and Units made by Division B to both external and internal customers.

(ii) RECOMMEND the transfer pricing range that would promote goal congruence between Division A and B.

(iii) DISCUSS the effect of changes in external demand on the transfer price for the company, assuming the current policy continues.

Answer 12 :

(i) Sales Analysis of Division B :

Total annual capacity and actual production of Division B is 1,00,000 units of components. Zero inventory implies that sales for the year was also 1,00,000 units of components. Sales to external customers was ₹ 20 crores, at ₹ 4,000 per unit. Therefore, units sold to external customers would be 50,000 units this year (i.e. ₹ 20 crores / ₹ 4,000 per unit).

Therefore, internal sales can be derived as the remaining 50,000 units for the year (annual sales 100,000 units less external sales 50,000 units). For the year, value of sales made to Division A is ₹ 16 crore (i.e. Total sales of ₹ 36 crore less external sales of ₹ 20 crores). The internal transfer price shall be ₹ 3,200 per unit (i.e. ₹ 16 crores / 50,000 units).

Had there been no extra demand, opportunity cost for Division B would have been NIL. Therefore, minimum transfer price would only be the variable cost of ₹ 2,750 per unit of component. However, as given in the problem, that there was an excess demand for 18,000 units of components from external customers, that could not be met since Division B had to give priority to internal demand. Had these sales been made, Division B would have earned ₹ 1,250 per unit contribution (Sale price ₹ 4,000 per unit less variable cost ₹ 2,750 per unit). This lost contribution of ₹ 1,250 per unit is the opportunity cost per unit for Division B. Due to company's policy of giving priority to internal demand, Division B lost a total contribution of ₹ 2.25 crore during the year (i.e. 18,000 units x contribution of ₹ 1,250 per unit).

Therefore, internal sales comprises of two parts :

32,000 units of components transferred at variable cost ₹ 2,750. This amounts to ₹ 8.8 crores. There is no opportunity cost in this internal transfer.

18,000 units of components transferred factoring any opportunity cost = variable cost + contribution per unit = external sales price = ₹ 4,000 per unit. This amounts to ₹ 7.2 crores.

Therefore, total internal sales = ₹ 8.8 crores + ₹ 7.2 crores = ₹ 16 crores.

Summarizing : External sales are 50,000 units amounting to ₹ 20 crores annual sales value. Internal sales are 50,000 units amounting to ₹ 16 crores annual sales value. Transfer price for 32,000 units is at variable cost of ₹ 2,750 per unit while for 18,000 units it is at external sales price of ₹ 4,000 per unit.

(ii) Transfer Price Range for Divisions A and B

Division A procures its entire demand of 50,000 units from Division B. Out of this, 18,000 units at market price of ₹ 4,000 per unit while 32,000 units are procured at a lower rate ₹ 2,750 per unit. Had Division A procured 32,000 units from the market, the additional cost of procurement would be ₹ 4 crores [i.e. (₹ 4,000 - ₹ 2,750) x 32,000 units]. Division A currently enjoys this benefit of lower procurement cost. Financials of Division B shows no profit from such internal transfers. This may skew the performance assessment of the divisions, if it is based primarily on financial metrics of each division. In order to promote goal congruence, some portion of this benefit can be shared with Division B.

Division B will at the minimum want to recover its variable cost of ₹ 2,750 per unit, while Division A will be ready to pay maximum up to external market price of ₹ 4,000 per unit. Therefore, transfer price range can be set between ₹2,750 - ₹4,000 per unit. Division A enjoys lower procurement rate while Division B's financials reflect some benefit of transferring components internally to Division A.

(iii) Impact of External Demand on Transfer Price :

As per the company's transfer pricing policy, Division B gives priority to demand from Division A. The division has a production capacity of 1,00,000 units annually. If there is no external market for Division B's components, then transfer price for the entire internal transfer would be the variable cost of ₹ 2,750 per unit plus portion of the fixed cost (if any). This is the minimum cost that Division B would like to recover from Division A.

When there is an external market, transfer price would depend on whether Division B had to incur any opportunity in the form of lost sales. When total demand (internal and external) is within production capacity of 1,00,000 units, the entire demand can be met. There would be no lost sales for Division B, no opportunity cost. Therefore, transfer price for the entire internal transfer would be the variable cost of ₹ 2,750 per unit. This is the minimum cost that Division B would like to recover from Division A.

When there is an external market, such that total demand (internal and external) is more than production capacity of 1,00,000 units, due to priority given to internal transfer, some portion of the external demand might not be met. This would be lost sales for Division B, opportunity cost would be the contribution loss from such sales at ₹ 1,250 per unit. This opportunity cost would be passed on to Division A. As explained in part (ii) above, transfer price range will be from ₹2,750 - ₹4,000 per unit. More lost sales for Division B would keep the average transfer price higher towards ₹4,000 per unit. Lesser lost sales for Division B would keep the average transfer price towards the lower bound of ₹2,750 per unit. Therefore, the proportion of external demand that could not be catered to, would determine the average transfer price. Higher the demand from external customers would drive up the average transfer price within the company.

Question 13 : [ICAI Module]

B Ltd. makes three products X, Y and Z in Divisions X, Y and Z respectively. The following information is given :

Particulars	Product X	Product Y	Product Z
Direct Material (₹/Unit)			
(Excluding material X for Divisions Y and Z)	8	22	40
Direct Labour (₹/Unit)	4	6	8
Variable Overheads (₹/Unit)	2	2	2
Selling price to outside customers (₹/Unit)	25	65	90
Existing capacity (no. of units)	6,000	3,000	3,000
Maximum external market demand (no. of units)	5,000	5,500	5,000
Additional fixed cost that would be incurred to install additional capacity (₹)	45,000	9,000	23,100
Maximum additional units that can be produced by additional capacity	6,000	2,000	2,250

Y and Z need material X as their input. Material X is available in the market at ₹ 23 per unit. Defectives can be returned to suppliers at their cost. Division X supplies the material free from defects and hence is able to sell at ₹ 25 per unit. Each unit of Y and Z require one unit of X as input with slight modification.

If Y purchases from outside at ₹ 23 per unit, it has to incur ₹ 3 per unit as modification and inspection cost. If Y purchases from Division X, it has to incur, in addition to the transfer price, ₹ 2 per unit to modify it.

If Z gets the material from Division X, it can use it after incurring a modification cost of ₹ 1 per unit. If Z buys material X from outside, it has to either inspect and modify it at its own shop floor at ₹ 5 per unit or use idle labour from Division X at ₹ 3 per unit. Division X will lend its idle labour as per Z's requirement even if Z purchases the material from outside.

The transfer prices are at the discretion of the Divisional Managers and will remain confidential. Assume no restriction on quantities of inter-division transfers or outside purchases.

Discuss with relevant figures the best strategy for each division and for the company as a whole.

Student Note : It is a little complicated question with multiple factors involved like -

(a) Product 'X' is available from internal transfer as well as from external market. We need to first decide, what is more profitable.

(b) All the divisions have production capacity constraint as well as market constraint. We have to decide, how much we can produce and sell, subject to these constraints.

(c) We have additional capacity available at all the divisions with incremental fixed cost. We need to also decide, whether the use of additional capacity is viable or not for the company.

(d) In every decision, we have to consider the principle of goal congruence i.e. overall benefit to the company should be highest.

Hence, you have to read the question and answer **very carefully** to understand it. If you still find it complicated, then leave it. It is not advisable to solve such questions in the exam condition, due to time constraint & very high chance of making errors.

Answer 13 :

B. Ltd.

1. Statement of Contribution p.u. (for outside purchase of X) :

Particulars	Product X	Product Y	Product Z
(a) Variable Cost per unit :			
Direct Material (excluding X)	8	22	40
Material X (outside purchase)	--	23	23
Direct Labour	4	6	8
Variable overheads	2	2	2
Modification & insp. cost for outside purchase of X	--	3	*5
Subtotal (a)	14	56	78
(b) Outside Selling Price p.u.	25	65	90
(c) Contribution p.u. [b – a]	11	9	12

*** Note :** For division 'X', use of spare capacity for self is profitable. In such case, labour will not remain idle for modification of Dept. 'Z'. Hence, cost of idle labour Rs. 3 is irrelevant. For 'Z' cost incurred in own shop floor Rs. 5 is relevant.

2. Statement of Incremental Contribution p.u. (for internal transfer of X) :

Particulars	Product Y	Product Z
(a) Variable Cost per unit :		
Direct Material (excluding X)	22	40
Material X (variable cost to Dept. X) (w.n. 1)	14	14
Direct Labour	6	8
Variable overheads	2	2
Modification for internal transfer of X	2	1
Subtotal (a)	46	65
(b) Outside Selling Price p.u.	65	90
(c) Contribution p.u. [b – a]	19	25
(d) Existing contribution p.u. [w.n. 1(c)]	9	12
(e) Incremental contribution p.u. for the company [d – c]	10	13

3. Priority of Department 'X' for overall benefit :

If we observe the above two workings, then we notice the following priority for the company :

Priority	Decision about Product 'X'	Contribution p.u.
I	Transfer X to division Z	13
II	Sale X in the outside market	11
III	Transfer X to division Y	10

4. **Capacity Utilisation for Division Y & Z :**

Particulars	Division 'Y'	Division 'Z'
(a) Maximum external demand (units)	5,500	5,000
(b) Demand satisfied from existing capacity	3,000	3,000
(c) Balance unsatisfied demand [a - b]	2,500	2,000
(d) Demand to be satisfied from additional capacity	2,000	2,000
(e) Unsatisfied demand [c - d]	500	NIL
(f) Actual possible production & sale [i.e. lower of what we can produce and what we can sale] [b + d]	5,000	5,000

5. **Optimum use of capacity of division X, based on priority :**

Particulars	Existing	Additional
Available capacity of Div. X (units)	6,000	6,000
Less : To be used for internal transfer to division Z first	5,000	--
∴ Balance capacity left	1,000	6,000
Less : To be used for outside demand of X	1,000	4,000
∴ Balance capacity left	NIL	2,000
Balance capacity to be used for transfer to division Y	NIL	2,000

6. **Decision regarding use of additional capacity :**

Particulars	Division X	Division Y	Division Z
Incremental contribution from use of additional capacity	[(4,000 x 11) + (2,000 x 10)] = 64,000	(2,000 x 9) = 18,000	(2,000 x 12) = 24,000
Less : Incremental fixed cost	45,000	9,000	23,100
∴ Incremental profit / (loss)	19,000	9,000	900
Decision	Go ahead	Go ahead	Go ahead

Student Note :

My presentation of the above answer is very different from ICAI. Hence, don't compare it with ICAI module. You are likely to get confused.

I would repeat that such questions are not feasible to solve in the exam hall. Instead, we can attempt 3 other questions in this much time.

Question 14 : [Jan. 2021 Exam - 20 Marks]

Alpha and Beta are two divisions of the Active Multinational Ltd. (AML). The Division Alpha manufactures auto components which it sells to other divisions and external customers.

The Division Beta has designed a new product, Product BZ, and has asked Division Alpha to supply the auto component, Component AX, that is needed in the new product. Each unit of Product BZ will require one Component AX. The Component will not be sold by Division Alpha to external customers. Division Alpha has quoted a transfer price to Division Beta of ₹ 40 for each unit of Component AX.

It is the policy of the company to reward managers based on their individual division's return on capital employed.

Division Alpha produces the Component AX in batches of 1,000 units. The maximum capacity is 8,000 units per month. Variable cost amounts to ₹ 12 per unit. Fixed costs per month are ₹ 60,000 which is incurred specifically to produce Component AX.

Product BZ will be produced in batches of 1,000 units in Division Beta. The maximum customer demand is 8,000 units of Product BZ. Variable costs will be ₹ 8 per unit plus the cost of component AX. Fixed costs of ₹ 90,000 are to be incurred specifically to produce Product BZ.

The head of Division Beta has given the following forecast :

Demand	Selling price per unit (₹)
2,000 units	120
4,000 units	100
5,000 units	90
6,000 units	82
7,000 units	70
8,000 units	65

Required :

(a) CALCULATE, based on a transfer price of ₹ 40 per Component AX, the monthly profit that would be earned as a result of selling Product BZ by (Here the situation is governed by the actions of the manager of Division Beta) :

(i) Division Beta

(ii) Division Alpha

(iii) Company as a whole **(5 Marks)**

(b) FIND out the profit maximizing output from the sale of Product BZ for the Active Multinational Ltd. **(6 Marks)**

(c) CALCULATE, using the marginal cost of Component AX as the transfer price, the monthly profit that would be earned as a result of selling Product BZ by -

(i) Division Alpha

(ii) Division Beta

(iii) Company as a whole **(3 Marks)**

(d) The Operation Head of the company requires internal transfer between the divisions at marginal cost from the overall company's perspectives. If marginal cost is used as the transfer price, the manager of the Division Alpha will not be motivated as there will be no incentives to the division to transfer components internally.

What transfer pricing policy would you SUGGEST to help the company to overcome the conflict between optimum decision making and performance evaluation? **(6 Marks)**

Answer 14 :

Student Note : In the question, we are asked to calculate monthly **profit** and not contribution. Secondly, profit at which volume of output is not clearly mentioned. It means, we need to calculate profits at all the possible volumes of output for Alpha, Beta and AML.

However, ICAI answer seems to be inadequate and confusing. Hence, the answer presented below is a modified answer.

(a) Monthly Profitability Statement based on Transfer Price of ₹ 40 :

Particulars	Demand for Product BZ (in units)					
	2,000	4,000	5,000	6,000	7,000	8,000
(a) Transfer price of AX	40	40	40	40	40	40
(b) Variable cost of AX	12	12	12	12	12	12
(c) Contribution p.u. of AX [a - b]	28	28	28	28	28	29
(d) Total contribution of Alpha [Qty. x (c)] (₹ '000)	56	112	140	168	196	224
(e) Fixed cost - Alpha (₹ '000)	60	60	60	60	60	60
(f) Profit / (Loss) to Alpha [d - e] (₹ '000)	(4)	52	80	108	136	164
(g) Selling price p.u. of BZ	120	100	90	82	70	65
(h) Variable cost p.u. of BZ [40 + 8]	48	48	48	48	48	48
(i) Contribution p.u. of BZ [g - h]	72	52	42	34	22	17
(j) Total contribution of Beta [Qty. x (i)] (₹ '000)	144	208	210	204	154	136
(k) Fixed cost - Beta (₹ '000)	90	90	90	90	90	90
(l) Profit / (Loss) to Beta [j - k] (₹ '000)	54	118	120	114	64	46
(m) Total Profit of AML [f + l] (₹ '000)	50	170	200	**222**	200	210

(b) From the above working, it may be noticed that the total profit for Active Multinational Ltd. (AML) is maximum at an output of 6,000 units. Maximum profit is ₹ 2,22,000.

(c) **Monthly Profitability Statement based on Transfer Price of ₹ 12 i.e. Marginal cost :**

Particulars	Demand for Product BZ (in units)					
	2,000	4,000	5,000	6,000	7,000	8,000
(a) Transfer price of AX	12	12	12	12	12	12
(b) Variable cost of AX	12	12	12	12	12	12
(c) Contribution p.u. of AX [a - b]	0	0	0	0	0	0
(d) Total contribution of Alpha [Qty. x (c)] (₹ '000)	0	0	0	0	0	0
(e) Fixed cost - Alpha (₹ '000)	60	60	60	60	60	60
(f) Profit / (Loss) to Alpha [d - e] (₹ '000)	(60)	(60)	(60)	(60)	(60)	(60)
(g) Selling price p.u. of BZ	120	100	90	82	70	65
(h) Variable cost p.u. of BZ [12 + 8]	20	20	20	20	20	20
(i) Contribution p.u. of BZ [g - h]	100	80	70	62	50	45
(j) Total contribution of Beta [Qty. x (i)] (₹ '000)	200	320	350	372	350	360
(k) Fixed cost - Beta (₹ '000)	90	90	90	90	90	90
(l) Profit / (Loss) to Beta [j - k] (₹ '000)	110	230	260	282	260	270
(m) Total Profit of AML [f + l] (₹ '000)	50	170	200	**222**	200	210

Student Note : Change in transfer price will affect the profitability of only individual divisions. However, the overall profitability of the organisation will remain same.

(d) Transfer at marginal cost is unsuitable for performance evaluation since they do not provide an incentive for the supplying division to transfer goods and services internally. This is because they do not contain a profit margin for the supplying division. Top Management's intervention may be necessary to instruct the supplying division to meet the receiving division's demand at the marginal cost of the transfers. Thus, divisional autonomy will be undermined. Transferring at cost plus a mark-up creates the opposite conflict. Here, the transfer price meets the performance evaluation requirement but will not induce managers to make optimal decisions. **To resolve the above conflicts the following transfer pricing methods have been suggested.**

Dual Rate Transfer Pricing System

The supplying division records transfer price by including a normal profit margin thereby showing reasonable revenue. The purchasing division records transfer price at marginal cost thereby recording purchases at minimum cost. This allows for better evaluation of each division's performance. It also improves co-operation between divisions, promoting goal congruence and reduction of sub-optimization of resources.

Two Part Transfer Pricing System

This pricing system is again aimed at resolving problems related to distortions caused by the full cost based transfer price. Here,

Transfer price = Marginal cost of production + a lump-sum charge (two part to pricing)

While marginal cost ensures recovery of additional cost of production related to the goods transferred, lump-sum charge enables the recovery of some portion of the fixed cost of the supplying division. Therefore, while the supplying division can show better profitability, the purchasing division can purchase the goods at lower rate compared to the market place.

* * * * *

10 STRATEGIC ANALYSIS OF OPERATING INCOME (ABC)

Questions on Calculation of Product Cost

PROBLEM 1 :

XYZ Ltd. Manufactures four products, namely A, B, C and D using the same plant and process. The following information relates to a production period:

Product	A	B	C	D
Output in units	720	600	480	504
Cost per unit :	Rs.	Rs.	Rs.	Rs.
Direct material	42	45	40	48
Direct labour	10	9	7	8
Machine hours per unit	4 hrs.	3hrs.	2 hrs.	1 hr.

The four products are similar and are usually produced in production runs of 24 units and sold in batches of 12 units. Using machine hour rate currently absorbs the production overhead. The total overheads incurred by the company for the period is as follows :

Particulars	Rs.
Machine operation and Maintenance cost	63,000
Setup costs	20,000
Store receiving	15,000
Inspection	10,000
Material handling and dispatch	2,592

During the period following cost drivers are to be used for the overhead cost :

Cost	Cost driver
Setup cost	No. of production runs
Store receiving	Requisition raised
Inspection	No. of production runs
Material handling and dispatch	Orders executed

It is also determined that :

- Machine operation and maintenance cost should be apportioned between setup cost, store receiving and inspection activity in 4 : 3 : 2.
- Number of requisition raised on store is 50 for each product and the no. of order executed is 192, each order being for a batch of 12 of a product.

Required :

(a) Calculate the total cost of each product, if all overhead costs are absorbed on machine hour rate basis.

(b) Calculate the total cost of each product using activity base costing.

(c) Comment briefly on differences disclosed between overhead traced by present system and those traced by activity base costing.

ANSWER 1 : **XYZ Ltd.**

a. Machine hour rate method :-

Machine hour rate = Total overheads / Total machine hours

$$= \frac{[63,000 + 20,000 + 15,000 + 10,000 + 2,592]}{[(720 \times 4) + (600 \times 3) + (480 \times 2) + (504 \times 1)]}$$

= Rs. 1,10,592 / 6,144 hrs. = Rs 18 per machine hour

Product cost sheet :-

Particulars	A (Rs.)	B (Rs.)	C (Rs.)	D (Rs.)
Direct material / unit	42	45	40	48
Direct labour / unit	10	9	7	8
Prime cost / unit	52	54	47	56
(+) OH @ Rs. 18 per M/c hr.	72	54	36	18
Total cost / unit	124	108	83	74

b. Activity Based Costing :-

Calculation of cost Driver rates :-

Set up cost $= \frac{[20,000 + (4/9 \times 63,000)]}{[2,304 \text{ units} / 24 \text{ units}]}$

= Rs. 48,000 / 96 Production runs = Rs. 500 per production run

Store receiving $= \frac{[15,000 + (3/9 \times 63,000)]}{[50 \times 4 \text{ products}]}$

= Rs. 36,000 / 200 requisitions = Rs. 180 per purchase requisition

Inspection $= \frac{[10,000 + (2/9 \times 63,000)]}{96 \text{ production runs}}$

= Rs. 24,000 / 96 runs = Rs. 250 per production run

Material Handling & Dispatch = Rs. 2,592 / 192 orders = Rs. 13.50 per order

c. Product Cost Sheet using ABC :-

Particulars	A (Rs.)	B (Rs.)	C (Rs.)	D (Rs.)
a. Overheads Cost :-				
Set up cost @ Rs. 500 per production run	15,000	12,500	10,000	10,500
Stores receiving @ Rs. 180 per purchase req.	9,000	9,000	9,000	9,000
Inspection @ Rs. 250 per production run	7,500	6,250	5,000	5,250
Material handling & dispatch @ Rs.13.50 per order	810	675	540	567
Total Overheads (a)	**32,310**	**28,425**	**24,540**	**25,317**
b. Overheads per unit i.e. [a / output]	44.875	47.375	51.125	50.232
c. Prime cost per unit	52	54	47	56
d. Total cost / unit (b + c)	96.875	101.375	98.125	106.232

PROBLEM NO. 2 :

ABCD Co. Ltd. produces and sells four products A, B, C and D. These products are similar and usually produced in production runs of 10 units and sold in a batch of 5 units. The production details of these products are as follows:

Particulars	Product A	Product B	Product C	Product D
Production (units)	100	110	120	150
Cost per Unit (Rs.) :				
Direct Material	30	40	35	45
Direct Labour	25	30	30	40
Machine hour (per unit)	5	4	3	4

The production overheads during the period and its cost drivers are as follows :

Particulars	Overheads (Rs.)	Cost Driver
Factory works expenses	22,500	Machine hours
Stores receiving costs	8,100	Requisitions raised
Machine set up costs	12,200	No. of production runs
Cost relating to quality control	4,600	No. of production runs
Material handling and dispatch	9,600	No. of orders executed
Total	57,000	

The number of requisitions raised on the stores was 25 for each product and no. of orders executed was 96, each order was in a batch of 05 units.

Required :

(i) Total cost of each product assuming the absorption of overhead on machine hour basis;

(ii) Total cost of each product assuming the absorption of overhead by using activity based costing system; and

(iii) Show the differences between (i) and (ii) above and comment.

ANSWER 2 :

1. Statement Showing total cost of each product using Machine hour Rate Basis:

Overhead Rate = Total Overhead Cost / Total M/C Hrs.
= Rs. 57,000 / *1,900
= Rs. 30 per unit

*Total Machine Hours = No. of units produced x M/C hours per unit
= (100 x 5) + (110 x 4) + (120 x 3) + (150 x 4)

Particulars	A	B	C	D
(a) Output (units)	100	110	120	150
(b) Direct material p. u. (Rs.)	30	40	35	45
(c) Direct Labour p. u. (Rs.)	25	30	30	40
(d) Prime Cost p. u. (Rs.) [b + c]				
(e) Machine hours p. u.	5	4	3	4
(f) Overhead @ Rs. 30 per M/C hr.	150	120	90	120
(g) Total cost per unit (Rs.) [d + f]	205	190	155	205

2. Statement showing total cost of each product using ABC :

Particulars	Cost	Cost Driver	A	B	C	D
	Rs.		Rs.	Rs.	Rs.	Rs.
(a) Output (units)			100	110	120	150
(b) No. of production runs		[a / 10]	10	11	12	15
(c) No. of stores requisition		Equal	25	25	25	25
(d) No. of sales orders		[a / 5]	20	22	24	30
(e) Direct material p. u.		Given	30	40	35	45
(f) Direct labour p. u.		Given	25	30	30	40
(g) Prime cost p. u.		[e + f]	55	70	65	85
(h) Factory works expenses	22,500	Total M/c Hrs. [500:440:360:600]	5,921	5,211	4,263	7,105
(i) Stores receiving cost	8,100	Req. raised (c) [25 : 25 : 25 : 25]	2,025	2,025	2,025	2,025

(j) Machine set-up cost	12,200	Prodn. Runs (b) [10 : 11 : 12 : 15]	2,542	2,796	3,050	3,812
(k) Quality Control cost	4,600	Prodn. Runs (b) [10 : 11 : 12 : 15]	958	1,054	1,150	1,438
(l) Material Handling cost	9,600	Orders executed [20 : 22 : 24 : 30]	2,000	2,200	2,400	3,000
(m) Total Overheads cost		[h + i + j + k + l]	13,446	13,286	12,888	17,380
(n) Overhead cost p. u.		[m / a]	134.46	120.78	107.40	115.87
(o) Total cost p. u.		[g + n]	189.46	190.78	172.40	200.87

3. Statement showing differences (in Rs.)

Particulars	A	B	C	D
(a) Unit cost using MHR	205.00	190.00	155.00	205.00
(b) Unit cost using ABC	189.46	190.78	172.40	200.87
(c) Unit cost- difference [a – b]	15.54	-0.78	-17.40	4.13

Comments :

(a) The use of activity based costing gives different product costs than what were arrived at by utilizing traditional costing.

(b) It can be argued that Product costs using ABC are more precise as overheads have been identified with specific activities.

(c) The difference in unit cost is higher in case of Product A & C and negligible in case of Product B.

PROBLEM NO. 3 :

ABC Ltd. manufactures four products A, B, C & D in the same factory. The following information is given for a certain period:

Product	**A**	**B**	**C**	**D**
Good output (No. of units)	720	600	480	504
Average yield (%)	80	80	96	96
Machine hours per unit of input	4	3	2	1

The plant works such that after machining, the defectives in each run are automatically segregated and dumped separately in a container. The good units pass through the process and are further checked for quality by the inspectors of quality control who charge by the number of batches inspected. The total production and selling overheads of the company for the period are :

	₹
Machine operation and maintenance	66,375
Set up costs	19,200
Stores receiving	21,400
Inspection	24,000
Finished goods – packing /dispatch	14,400

The following additional information is given:

(i) A material requisition is made for every 25 units of input.

(ii) Machines need to be set up and tuned after each production run.

(iii) Production is in batches of 24 good units for all the products.

(iv) Units of A and B are packed in boxes that have 24 units capacity each and C & D are packed in smaller boxes of 12 units capacity. The smaller box costs half the price of the bigger box. Each box contains only one type of product. There is no product mix up in packing.

Choose appropriate activity cost drivers for each overhead cost and calculate the overhead cost per unit of good output for each of the products under the ABC system.

ANSWER 3 :

Table 1 : Calculation of cost driver quantity:

	Particulars	A	B	C	D	Total
(a)	Output in good units	720	600	480	504	
(b)	Average Yield (%)	80	80	96	96	
(c)	Input [a ÷ b]	900	750	500	525	2,675
(d)	No. of batches/production runs [(a) ÷ 24]	30	25	20	21	96
(e)	No. of Material Requisition [(c) ÷ 25]	36	30	20	21	107
(f)	No. of boxes packed (a ÷ 24) & (a ÷ 12)	30	25	40	42	
(g)	No. of equivalent boxes packed (for costing purpose only)	30	25	20	21	96
(h)	Machine hrs/unit of input	4	3	2	1	
(i)	Total Machine hours for product [(h) x (c)]	3,600	2,250	1,000	525	7,375

Table 2: Calculation of cost driver rate:

Overhead Cost	Amount (Rs)	Cost Driver	Cost Driver Qty.	Cost driver rate
M/c Operation	66,375	M/c hours for product	7,375	9
Sep up Cost	19,200	No. of set ups or production runs	96	200
Stores receiving	21,400	No. of requisitions	107	200
Inspection	24,000	No. of production runs	96	250

Finished goods packing/dispatch	14,400	No. of equivalent boxes	96	150

Table 3: Allocation of Indirect Expenses on the basis of relevant cost driver:

Particulars	WN	A	B	C	D	Total
M/c operation	1(i)	32400	20250	9000	4725	66375
Set up Costs	1(d)	6000	5000	4000	4200	19200
Stores Receiving	1(e)	7200	6000	4000	4200	21400
Inspection	1(d)	7500	6250	5000	5250	24000
Finished goods packing	1(g)	4500	3750	3000	3150	14400
Total Overhead Costs		57600	41250	25000	21525	145375
Good units produced		720	600	480	504	
Overhead cost per good unit		80	68.75	52.08	42.71	

PROBLEM NO. 4 :

In a company, factory overheads are applied on the basis of direct labour hours. Using the following data, calculate total overhead cost of Product X & Y.

Particulars	Dept. A	Dept. B
Fixed factory overheads (₹)	3,36,000	1,26,000
Variable OH Rate (₹) per hour	0.50	1.50
Labour Hours Required:		
For product X	1,40,000	70,000
For product Y	28,000	56,000

ANSWER 4 :

(1) Calculation of Fixed Overhead Recovery rate –

$$\text{Dept. A} = \frac{\text{Rs.3,36,000}}{(1,40,000 + 28,000)\text{Hrs.}} = \text{Rs.2/hrs.}$$

$$\text{Dept. B} = \frac{\text{Rs.1,26,000}}{70,000 + 56,000)\text{Hrs.}} = \text{Rs.1/hrs.}$$

(2) Product Cost Sheet:-

Particulars	X	Y
Variable Overheads:	**Rs.**	**Rs.**
Dept. 'A' @ 0.50/hr.	70,000 (1,40,000 x 0.5)	14,000 (28,000 x 0.5)
Dept 'B' @ 1.50/hr.	1,05,000 (70,000 x 1.5)	84,000 (56,000 x 1.5)
Fixed Overheads:		
Dept. 'A' @ 2/hr.	2,80,000 (1,40,000 x 2)	56,000 (28,000 x 2)
Dept. 'B' @ 1/hr.	70,000 (70,000 x 1)	56,000 (56,000 x 1)
∴ Total Overheads Cost	5,25,000	2,10,000

Customer Profitability Analysis

Question 5 : [RTP - Nov. 18]

ANCA Limited has decided to analyse the profitability of its four retail customers. It buys product 'Bio-aqua' at ₹ 218 per case and sells to them at list price less discount. The data pertaining to four customers are :

Particulars	Customers			
	A	B	C	D
No. of cases sold	7,580	38,350	78,520	15,560
List selling price	₹ 250	₹ 250	₹ 250	₹ 250
Actual selling price	₹ 245	₹ 236	₹ 228	₹ 232
No. of sale visits	6	12	16	10
No. of purchase orders	12	18	35	24
No. of delivery Kilometres	280	350	450	400

It's four activities and cost drivers are:

Activity	Cost Driver Rate
Sale visits	₹ 750 per sale visit
Order taking	₹ 800 per purchase order
Deliveries	₹ 10.50 per delivery km travelled
Product handling cost	₹ 2.50 per case sold

Required :

(i) COMPUTE the customer level operating income.

(ii) ANALYZE the profitability for each customer.

Answer 5 :

(i) Customer's Profitability Statement :

Particulars	**A**	**B**	**C**	**D**
(a) No. of cases sold	7,580	38,350	78,520	15,560
	(₹)	(₹)	(₹)	(₹)
(b) List Price per case	250	250	250	250
(c) Actual selling price	245	236	228	232
(d) Discount [b - c]	5	14	22	18
(e) Discount % [d/b x 100]	2%	5.6%	8.8%	7.2%
(f) Purchase cost	218	218	218	218
(g) Contribution per unit [c - f]	27	18	10	14
(h) Total Contribution [a x g]	2,04,660	6,90,300	7,85,200	2,17,840
(i) Visit Cost @ ₹ 750 per sale visit	4,500	9,000	12,000	7,500
(j) Order taking @ ₹ 800 per order	9,600	14,400	28,000	19,200
(k) Delivery Cost @ ₹ 10.50 per delivery km travelled	2,940	3,675	4,725	4,200
(l) Product Handling Cost @ ₹ 2.50 per case sold	18,950	95,875	1,96,300	38,900
(m) Total Profit per customer [h - i - j - k - l]	1,68,670	5,67,350	5,44,175	1,48,040
(n) Profit per case sold [m / a]	22.25	14.79	6.93	9.51
(o) % Profit per customer out of total profit earned by the company	11.81%	39.72%	38.10%	10.37%

(ii) Going by volume of cases sold, customer C is the biggest customer accounting for 56% of total sales volume, followed by customer B (27%), customer D (11%) and customer A (6%). However, in terms of profit per customer, Customer B is the most profitable accounting for 39.72% of the profits of ₹ 14,28,235. Customer C contributes to 38.10% of the same. Comparing customers B and C, customer B is more profitable despite accounting for sales volume that is less than half of customer B (customer C's 56% of sale volume versus customer B's 27%). The primary reason for this is because the discount given to customer C (8.8%) is higher than that given to customer B (5.6%). The difference is terms of sale could be due to the fact that customer C is the biggest customer and hence is able to negotiate for a higher discount. Consequently, for each case sold, customer C gets an additional discount of ₹ 8 as compared to customer B. This is reflected in the contribution generated per case. Sale of one case to customer C generates ₹ 10 contribution versus sale of one case to customer B generates ₹ 18 contribution. This has a huge impact on profitability. In terms of profit generated per case sold, customer C has the lowest profit at ₹ 6.93 per case. The company may review whether this difference in terms of sale to each of its customers is justified. If the discount to customer C at 8.8% was initially extended to promote sales, negotiations can be made to reduce this to mutually acceptable rates. However, care must be taken not to lose customer C to competitors.

Customer D is the least profitable accounting for just 10.37% of the total customer profits. In terms of sale volume, this customer ranks third providing 11% volume. However, the customer is not profitable because of the following reasons:

(a) A discount rate of 7.2% is provided to the customer. Each case sold after a discount of ₹ 18 per case, generates a contribution per case of only ₹ 14 per case. This is much lower compared to the contribution per case of customer A (₹ 27 per case) and customer B (₹ 18 per case). This discount policy may need to be reviewed. One scenario where such a high discount may be justified would be where customer D supplies the products that it manufactures at a discounted rate to a sister concern of the company. Therefore, at a parent company / overall level, the higher discount rate for a low volume customer D may be justified.

(b) For a customer that provides 11% of volume, the number of site visits during the year were 10. Customer C giving 56% of volume had only 16 visits and customer B giving 27% of volume had only 12 visits. This indicates that customer D, although a smaller customer, requires more visits than regular customers. Therefore, site visit costs are higher for this customer. The reason for a higher handholding by the company for this customer has to be analyzed. For example, one possible reason could be that customer D requires the cases customized to its production requirement. This may require more site visits by the company's personnel. To resolve this, due to the extra work involved, the company may wish to charge a higher sale price for the cases customized for customer D. In another scenario, it may choose to charge the customer a fixed rate for each site visit.

(c) For a customer that provides 11% of volume, the number of orders placed in a year are 24. Customer C giving 56% of volume placed 35 orders in a year and customer B giving 27% of volume placed 18 orders in a year. This indicates that customer D, although a small customer, places orders more frequently than other larger customers. Therefore, order processing costs are higher for customer D. The company may revise ordering schedule for this customer or find out the reason for higher proportion of purchase orders, in order to pass on some of the cost to the customer. For example, let us say, customer D has an agreement with the company to provide cases "just in time" resulting in more frequent orders as compared to other customers. Therefore, the company is providing flexibility in procurement to customer D. For this convenience, it may pass on some of the ordering cost to customer D by way of a higher selling price or a lower discount.

(d) Again, given the volume, the number of deliveries to customer D (400) is at a higher proportion compared to the larger customers C (450) and B (350). The company may revise delivery schedule for this customer or find out the reason for higher proportion of deliveries, in order to pass on some of the cost to the customer. For example, let us say, customer D has an agreement with the company to provide cases "just in time" resulting in more frequent deliveries as compared to other customers. Therefore, the company is providing flexibility in procurement to customer D. For this convenience, it may pass on some of the delivery cost to customer D by way of a higher selling price or a lower discount.

Customer A is the smallest customer providing only 6% of total sale volume. However, with a contribution per case at ₹ 27 per case and a profit per case at ₹ 22.25 per case, it is the most profitable of all customers. The primary reason for this is the discount of 2% offered is much lower than other customers. Each case sold to customer A yields a contribution of ₹ 27 as compared to a contribution of ₹ 10 from customer C, the biggest customer. Possible reason for a lower discount maybe customer A, being a smaller player, may have lesser bargaining power compared to other customers. If the company wishes to have a longer business relationship with customer A, it may wish to provide more favorable discount terms to this party. However, since customers B and C are much larger customers, any benefit passed onto customer A should not impact the company adversely in the long run. For example, in order get more orders from customer A, the company gives a 10% discount to the party. Consequently, the profitability of customer A will decrease. Let us say customer A places huge orders due to which there are capacity constraints within the company. Sales to customers B and C, the current larger customers, may be impacted. This could affect the company adversely in terms of lost sales to customers B and C and loss of business relationships with these parties. Therefore, careful consideration should be given before extending discounts to improve sales from customer A.

Question 6 :

Fast Cook Ltd., is a pressure cooker manufacturing company doing business through wholesalers and retailers. The company is following Activity Based Costing system. Average cost per cooker is ₹ 600 and the listed price is ₹ 1,000. But cookers are sold at a discount of 25% on listed price on orders for the above 200 units and at a discount of 20% on orders for 200 units or less.

The company wants to analyse the profitability of two of its wholesale customers A and B and two of its retail customers X and Y on the basis of the business with them during last year. This is to explore the opportunities to increase the profitability from the customers. The relevant data pertaining to the last year are given below :

Customer	A	B	X	Y
No. of purchase orders	50	65	230	270
No. of cookers purchased per order	500	300	40	30
No. of visits to customers place	10	15	25	22
No. of ordinary deliveries	45	50	175	200
No. of speed deliveries	5	15	50	65

The activity, cost driver and the rate are as follows :

Activity	Cost Driver	Cost per unit of Driver (₹)
Order processing	No. of purchase orders	1,300
Visiting customers	No. of customers visited	7,400
Ordinary delivery	No. of ordinary deliveries	2,000
Speed delivery	No. of speed deliveries	6,000

Required :

(i) Evaluate the customer profitability by calculating the profit per cooker from each customer. [12 Marks]

(ii) Recommend steps to be taken to improve profitability from less profitable customers. [4 Marks]

(iii) List down the service organisations for which customer profitability analysis is useful. [2 Marks]

(iv) Explain the specific benefits of customer profitability analysis. [2 Marks]

Solution 6 :

(i) Customer's Profitability Statement :

Particulars	A	B	X	Y
(a) No. of cookers purchased per order	500	300	40	30
(b) No. of purchase orders	50	65	230	270
(c) Total no. of cookers sold [a x b]	25,000	19,500	9,200	8,100
	(₹)	(₹)	(₹)	(₹)
(d) List Price per cooker	1,000	1,000	1,000	1,000
(e) Discount % on list price [given]	25%	25%	20%	20%
(f) Actual selling price [d - e]	750	750	800	800
(g) Average cost per cooker	600	600	600	600
(h) Contribution per unit [f - g]	150	150	200	200
(i) Total Contribution [c x h]	37,50,000	29,25,000	18,40,000	16,20,000
(j) Order processing @ ₹ 1300 per order	65,000	84,500	2,99,000	3,51,000
(k) Visiting customers @ ₹ 7,400 per customer visit	74,000	1,11,000	1,85,000	1,62,800
(l) Ordinary delivery @ ₹ 2,000 per ordinary delivery	90,000	1,00,000	3,50,000	4,00,000
(m) Speed delivery @ ₹ 6,000 per speed delivery	30,000	90,000	3,00,000	3,90,000
(n) Total Profit per customer [i - j - k - l - m]	34,91,000	25,39,500	7,06,000	3,16,200
(o) Profit per cooker sold [n / c]	139.64	130.23	76.74	39.04
(p) % Profit per customer out of total profit earned by the company	49.50%	36%	10.02%	4.48%

(ii) Steps to improve Customer's Profitability :

- It may be noticed from the above customer profitability analysis that the wholesale customers are more profitable than the retail customers. Specially, Customer 'Y' is least profitable customer. Hence, we need to think about improving the customer profitability.
- We can think of reducing the discount offered to the Retailers 'X' and 'Y'. Instead of a discount of 20% on list price, we should offer them 10% discount on list price or at the most 15% discount. This itself will help us to improve our profitability substantially.
- We can redesign our discount policy as : (a) Orders for 200 units or less but up to 101 units per order - discount 20%; (b) Orders for 100 units or less but up to 51 units per order - discount 15%; (c) Orders for 50 units or less - discount 10%.
- This will help us to improve the size of the order and therefore will reduce number of deliveries and the resultant costs i.e. order processing cost and delivery cost.
- We should set a maximum limit for number of free visits to customer place. Beyond this limit, we should charge them separately.
- Similarly, we should also set a maximum limit for free speed deliveries. Beyond this limit, we should charge them separately.

(iii) List of Service Organisations, for which customer profitability analysis is useful :

- Hotels
- Banks
- Vehicle service centers
- Hospitals
- Professionals or Consultants etc.

(iv) Benefits of Customer Profitability Analysis :

- It helps the supplier to identify which customers are eroding overall profitability and which customers are contributing to it.
- It can help to provide a basis for constructive dialogue between buyer and seller to improve margins.

Question 7 : [RTP May 2020]

Jawahar Stationary Mart (JSM) is located in centre of city "X" and popular for wide range of stationary products at competitive rate. Box files and cobra files are among the major product of JSM. JSM clients majorly, include medium and large corporate offices apart from reasonable base of retail clients. Mr. Ronit who done his masters in operations and marketing, recently join the family business (JSM). Mr. Ronit during first week itself, identify there are regular complaints from corporate clients regarding 'delivery of items, which are different from what is ordered' and 'for not meeting the requirements'. Mr. Ronit understands consumer behavior is very critical in nature, if understood well and used through-out the business operation; then can be key success factors. Hence with intent to establishing the integrated relations with customers at JSM, Mr. Ronit advise marketing team to start recording the data regarding customer in systemic manner and reporting of same.

Following is information regarding five major customers, who are regularly order printed cobra files (Product code – J-Cobra 10) from JSM.

Particulars	A	B	C	D	E
No. of units sold	6,000	8,000	10,000	7,000	8,000
Margin per unit	6	7. 5	7	8	10
No. of purchase order	10	30	25	20	10
No. of deliveries	3	4	6	4	5
Kilometers per delivery	100	185	50	250	50

Cost of processing the order is ₹ 2,000 per order and cost of handling material is ₹ 0.15 per item, whereas transport cost is ₹ 3 per kilometer for delivery of goods. 3 rushed deliveries made to 'B', cost for rush delivery is ₹ 800 per delivery.

Required :

(i) ANALYZE customer profitability for JSM.

(ii) EXPLAIN three fundamental aspects of CRM to facilitate building relationship with profitable customer/(s).

Answer 7 :

(i) Statement of the Customer Profitability at JSM :

Amount in INRs

Particulars	**A**	**B**	**C**	**D**	**E**
Margin (no. of units sold × margin per unit) ...(A)	36,000	60,000	70,000	56,000	80,000
Customer Attributable Costs:					
Cost of Processing Purchase Orders (no. of purchase orders × cost of processing the order)	20,000	60,000	50,000	40,000	20,000
Product Handling Cost (no. of units sold × cost of handling per item)	900	1,200	1,500	1,050	1,200
Delivery Cost (no. of deliveries × km per delivery × cost per km)	900	2,220	900	3,000	750

Cost of Rush Deliveries (no. of rush deliveries × cost per rush delivery)	---	2,400	---	---	---
Total ...(B)	21,800	65,820	52,400	44,050	21,950
Profit (or Loss) ...(A) – (B)	14,200	– 5,820	17,600	11,950	58,050
Profit / Net Revenue (in % age)	39.44%	– 9.7%	25.14%	21.34%	72.56%

Analysis :

From above, it can be concluded that customer A, C, and D are less profitable than customer E; whereas customer B is causing losses. Customer B provides a positive operating margin but is unprofitable when customer attributable costs are considered. This is because customer B requires more sales orders than the other customers. In addition, the customer has rush delivery costs.

This analysis can make sense, if interpreted, considering the 'Pareto Analysis'. Pareto Analysis named after economist Vilfredo Pareto, who specifies that 80% of consequences come from 20% of the causes i.e. 20% of customer provide 80% of the profit.

Although here proportion of 80:20 don't hold truth, but for JSM; major portion of profit (around 60%) coming from customer E only, therefore, customer E is critical to JSM. Special attention can then be given to enhancing the relationships with the customer E to ensure that customer E cannot migrate to other competitors. In addition, greater emphasis can be given to attract new customers that have the same attributes as the most profitable customer E.

Further, there is no point in serving customer B, but instead of refusing to trade with customer B, if possible; it may be better to turn it into profitable customer. Customer B can be made profitable if action is taken to convince the customer B to place a smaller number of larger quantity orders and avoid rush deliveries. If customer B cannot be convinced to change its buying behavior, selling prices should be increased to cover the extra resources consumed.

(ii) Supply chain management is the technique to integrate the supplier, manufacturing, store, and distribution function efficiently, in order to procure, produce and distribute at/in right time, quantity and place respectively. For effective distribution, CRM can be enabling tool. CRM is an integrated approach to manage and coordinate customer interactions to identifying, acquiring, and retaining customers. CRM enables businesses to understand and retain customers (through better customer experience) apart from attracting new customer, in order to increase profitably and decrease customer management costs. CRM system, comprises following three fundamental aspects to facilitate building relationship with profitable customers –

- Operative CRM takes care of individual transactions and is used by operational team. Interactions by customers are kept in the data base and are used later by the service, sales, and marketing team for operational decisions. In JSM, the staff who is responsible to deal with customer must be given access to customer's details including all the information of activities performed earlier. This will enhance the JSMs' staff's efficiency to deal with customer-facing processes in a better way.
- Analytical CRM analyses the data created on the operational side of the CRM effort for evaluation and prediction of customer behavior. In JSM, analytical CRM can highlight the patterns in customers' behavior which will help sale team while pitching the product at JSM.
- Collaborative CRM ensures that information about customer must flow seamlessly throughout the supply chain, majorly distribution channel; in form of collaborative effort by all associated department of JSM to increase the quality of services provided to customers. Increase in utility at customer end will result in increased loyalty. Collaborative CRM comprises interactive technology like email, digital media to simplify the communications between customers and staff which would help in building relationships.

PROBLEM NO. 8 :

RST Ltd. has provided the following summarized results for two years :

Particulars	Year ended (₹ in lacs)	
	31-03-2013	31-03-2014
Sales	3,000	3,277.50
Materials	2,000	2,357.50
Variable overheads	500	525.00
Fixed overheads	300	367.50
Profit	200	27.50

During the year ended 31-03-2014 sale price has increased by 15% whereas material and overhead prices have increased by 15% and 5% respectively.

You are required to analyse the variances of revenue and each element of cost over the year in order to bring out the reasons for the change in profit. Present a profit reconciliation statement starting from profits in 2012-13 showing the factors responsible for the change in profits in 2013-14.

Solution 8 : **RST Ltd.**

(1) Calculation of Variances : (Rs. In lacs)

Particulars	**31.03.13 Budget data**	**31.03.14 Actual data**	**31.03.14 data at 31.03.13 prices**	**Std. data for 31.03.14**	**W.N. Ref.**	**Variances (₹ lakhs)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Sales	3,000 (BQ x SSP)	3,277.50 (AQ x ASP)	2,850 (AQ x SSP) (3277.50 x 100/115)	-	(2)–(3) (1)-(3)	Sales Price Variance = 427.5 (F) Sales Volume Variance = 150 (A)
Material	2,000 (BQ x SP)	2,357.50 (AQ x AP)	2,050 (AQ x SP) (2357.5 x 100/115)	1,900 (SQ x SP) [2000 – 5%]	(2)-(3) (3)-(4)	Material Price Var. = 307.50 (A) Material Usage Var. = 150 (A)
Variable OH	500 (Bud. OH)	525 (Actual OH)	500 (AH x SRR/hr.) [525 x 100/105]	475 (Std. OH) [500 – 5%]	(2)-(3) (3)-(4)	OH Expenditure Var. = 25 (A) OH Efficiency Var. = 25 (A)
Fixed OH	300 (Bud. OH)	367.50 (Actual OH)	-	-	(1)-(2)	OH Expenditure Var. = 67.5 (A)

(2) Decrease in Sales Volume :

150/3000 x 100 = 5% decrease in sales volume.

(3) Decrease in contribution due to decrease in sales volume –

Contribution for 31.03.13 = 3,000 – (2,000 + 500) = 500 lakhs

Decrease in contribution = 500 x 5% volume decrease = 25 lakhs (A)

(4) Reconciliation Statement of Profit :

Particulars	₹ Lakhs	₹ Lakhs
Profit for 31.03.2013		200
Add : Increase in profit due to –		
→ Increase in sales price	427.50	427.50
Less : Decrease in profit due to –		
→ Decrease in sales volume (W.N. 3)	25.00	
→ Increase in Material price	307.50	
→ Increase in Material usage	150.00	
→ Increase in Variable OH Expenditure	25.00	
→ Decrease in Variable OH efficiency	25.00	
→ Increase in Fixed OH Expenditure	67.50	(600.00)
Profit for 31.03.14 ending		27.50

PROBLEM NO. 9 :

Despite the increase in the sale price of its sole product to the extent of 20% a company finds that it has incurred loss during the year, 2008 to the extent of Rs. 4 lakhs as against the profit of Rs. 5 lakhs made in 2007. The adverse situation is attributed mainly to the increase in price of materials and wage rates, the increase over the previous year being on the average, 15% and 10% respectively. The following figures are extracted from the books of the company –

Particulars	**31.03.2007 Rs.**	**31.03.2008 Rs.**
Sales	1,20,00,000	1,29,60,000
Cost of Sales -		
Materials	80,00,000	91,10,000
Labour cost	20,00,000	24,00,000
Fixed Overhead	15,00,000	18,50,000

You are required to analyse the variances in order to bring out the reasons for the fall in profit.

Solution 9 :

1. Statement showing calculation of variances : (Rs. in Lakhs)

Particulars	1	2	3	4	5	6
	Year 2007 Budget data	**Year 2008 Actual data**	**Year 2008 Standard data**	**Actual data Of 2008 at 2007 prices**	**Cal^{n}.**	**Variances**
Sales	120.00 (BQ x SSP)	129.60 (AQ x ASP)	--	108.00 (129.6 x 100/120) (AQ x SSP)	2 – 4 1 – 4	ales Price Variance = 21.6 (F) Sales Volume Variance = 12 (A)
Direct Material	80.00 (BQ x SP)	91.10 (AQ x AP)	72.00 (80 – 10%) (SQ x SP)	79.22 (91.1 x 100/115) (AQ x SP)	2 – 4 3 – 4	Mat. Price Variance = 11.88 (A) Mat. Usage Variance = 7.22 (A)
Direct wages	20.00 (BH x SR)	24.00 (AH x AR)	18.00 (20 – 10%) (SH x SR)	21.82 (24 x 100/110) (AH x SR)	3 – 4 2 – 4	Labour Efficiency = 3.82 (A) Labour Rate = 2.18 (A)
Fixed OH	15.00	18.50	F. OH should remain same for any volume of output.		1 – 2	OH Expenditure = 3.5 (A)

2. Statement showing reconciliation of Profit :

Particulars	**Rs. lakhs**	**Rs. lakhs**
Profit for the year 2007		5.00
Add : Increase in profit due to -		
Increase in sales price	21.60	21.60
Less : Decrease in profit due to -		
Decrease in contribution (WN 'B')	2.00	
Increase in material price	11.88	
Increase in material usage	7.22	
Increase in labour rate	2.18	
Decrease in labour efficiency	3.82	
Increase in fixed overhead expenditure	3.50	(30.60)
Therefore, Actual Loss		(4.00)

Working Notes :

A) Sales volume has decreased by 12 lacs
Percentage decrease = 12 / 120 x 100 = 10%

B) Contribution for the year 2007 = (120 – 80 – 20) = 20 lacs
Decrease in contribution due to decrease in sales volume = 20 x 10% = Rs. 2 lacs (A)

Question 10 : [RTP – Nov. 2019]

Established in the year 1999, **FF Company** is the pioneer of fast food in Southampton. It delivers a truly fresh, affordable, made to order sandwiches, burger, and other meals in a friendly and relaxed environment. The popularity of the sandwiches, burger etc. continued to grow over the decades but one thing remained the same and that was its core values and principles.

- Always provide exceptional service to valued guests,
- Provide the highest quality menu items at a price everyone can afford and enjoy, and
- Keep operating costs low and ensure to have great systems in place and never stop improving.

It provides a comfortable place for people to unwind over interesting conversations. From the beginning, as it continues to grow, it is guided by passion for delighting customers by serving fresh, delicious food right in front of customer.

The performance report of burger segment for FY 2018-19 was presented at the management committee meeting as follows :

Particulars	Budget	Actual	Variance
Sales/Production (no. of burgers)	2,00,000	1,65,000	(35,000)
Sales (£)	10,50,000	8,46,450	(2,03,550)
Less: Variable Costs (£)	6,33,000	5,37,075	95,925
Less: Fixed Costs (£)	1,57,500	1,65,000	(7,500)
Profit (£)	2,59,500	1,44,375	(1,15,125)

The Management Accountant of FF believed that the size of the fast-food market deriving the budget number of burgers to be sold is over-estimated. He has computed the value of the sales volume contribution planning variance to be 26,062.50 adverse.

Further, the report also included customer's feedback and the majority of comments were regarding delay in service time. One of feedback was as follows :

"I ordered two burgers at 2:10 pm. After half an hour (30 minutes) of waiting I called the waiter and asked him what happened? He told me that he will check with kitchen. I got the order after 45 minutes of waiting, this cafe is not good in delivery time."

The budgeted data shown in the table is based on the assumption that total market size would be 4,00,000 units.

Required :

(i) PREPARE a reconciliation statement of budgeted profit to actual profit through marginal costing approach in as much details as possible.

(ii) EXPLAIN the implications of the reconciliation statement.

(iii) Management is worried about customer's feedback. ADVISE measures to improve delivery service time.

Answer 10 :

(i) **Statement of Reconciliation – Budgeted Vs Actual Profit :** (Refer working below)

Particulars	£
Budgeted Profit	2,59,500.00
Less: Sales Price Variance (WN 1)	(19,800.00)
Less: Sales Volume Contribution – Planning Variance (Given)	(26,062.50)
Less: Sales Volume Contribution – Operational Variance (WN 2)	(46,912.50)
Less: Variable Cost Variance (WN 3)	(14,850.00)
Less: Fixed Cost / Expenditure Variance (WN 4)	(7,500.00)
Actual Profit	1,44,375.00

Workings :

Key Calculations :

$$\text{Budgeted Market Share (in \%)} = \frac{2,00,000 \text{ units}}{4,00,000 \text{ units}} = 50\%$$

Budgeted Contribution = £10,50,000 - £6,33,000 = £4,17,000

Average Budgeted Contribution (per unit)

$$= \frac{£\ 4,17,000}{2,00,000 \text{ units}} = £\ 2.085 \text{ per unit}$$

Sales Volume Contribution Planning Variance (i.e. Market Size Variance)

= Bud. Contribution p.u. x [Budgeted Market Share % x (Bud. Mkt. Size - Actual Mkt. Size)]

£ 26,062.50 (A) = £ 2.085 x [50% x (4,00,000 units - Actual Mkt. Size)]

£ 26,062.50 / £ 2.085 = [50% x (4,00,000 units - Actual Mkt. Size)]

12,500 = 50% x (4,00,000 units - Actual Mkt. Size)

12,500 / 50% = 4,00,000 units - Actual Mkt. Size

25,000 = 4,00,000 units - Actual Mkt. Size

Actual Market Size = 4,00,000 units - 25,000 units = 3,75,000 units

$$\text{Actual Market share (in \%)} = \frac{1,65,000 \text{ units}}{3,75,000 \text{ units}} = 44\%$$

$$\text{Standard Sales Price per unit} = \frac{£\ 10,50,000}{2,00,000 \text{ units}} = £\ 5.25$$

$$\text{Actual Sales Price per unit} = \frac{£\ 8,46,450}{1,65,000 \text{ units}} = £\ 5.13$$

Standard Variable Cost per unit = £ 6,33,000 / 2,00,000 units = £ 3.165

Actual Variable Cost per unit = £ 5,37,075 / 1,65,000 units = £ 3.255

Calculation of Variances :

(1) Sales Price Variance = AQ sold x (SSP - ASP)
= 1,65,000 x (£ 5.25 - £ 5.13) = £ 19,800 (A)

(2) Market Share Variance = Contribution Volume Operational Variance
= Bud. Cont. p.u. x [Actual Market Size x (Bud. Mkt. Share - Actual Mkt. Share)]
= £ 2.085 x [3,75,000 x (50% - 44%)]
= £ 2.085 x [3,75,000 x 6% reduction]
= £ 46,912.50 (A)

OR

Total Contribution Volume Variance
= Bud. Cont. p.u. x [Bud. Sales Qty. - Actual Sales Qty.]
= £ 2.085 x [2,00,000 units - 1,65,000]
= £ 72,975 (A)

Market Share Variance = Total Contrib. Volume Variance - Market Size Variance
= £ 72,975 (A) - £ 26,062.50 (A)
= £ 46,912.50 (A)

(3) Variable Cost Variance = Standard V.C. for actual output - Actual Variable Cost
= Actual Output x (Std. VC p.u. - Actual VC p.u.)
= 1,65,000 units x (£ 3.165 - £ 3.255)
= £ 14,850 (A)

(4) Fixed Cost Variance = Fixed OH Expenditure Variance under Marginal Costing
= Budgeted Fixed Cost – Actual Fixed Cost
= £ 1,57,500 - £ 1,65,000
= £ 7,500 (A)

(ii) Implications of Reconciliation Statement :

In the revised statement, the sales volume variance has been detailed by the way of two variances i.e. planning and operational variances. This kind of detailed information assists the company to check, which kind of variances are under the management control and which are not. FF has adverse volume contribution planning variance (i.e. Market Size Variance) and the reason of this could be the environmental / market changes, that was not anticipated at the time of budget preparation. Hence, they are not under management control and no one is responsible for this.

On the other hand, the sales volume contribution operational variance (i.e. Market Share Variance) was under control of the managers and they should be held responsible for the same. The reason of adverse sales volume contribution operational variance could be unsuccessful direct selling efforts / marketing efforts. FF has adverse sales price variance as well. It indicates that the burgers were sold for lower price than standard. The reason for this could be unforeseen market competitive price, tapping new market etc.

Further, revised reconciliation statement delivers little information about the variable cost and fixed cost variances. They both are adverse. Fixed cost consists of mainly items such as salaries, annual maintenance cost, rent and insurance etc. Often fixed cost items are not affected in short run in response to change in the level of activity, but they might change in response to other factors such as price. This may cause increase in expenditure on fixed overheads. A meaningful analysis of fixed cost variance requires a line to line comparison of budgeted cost with actual cost.

In case of FF, the variable cost may be made up of large individual different items such as vegetables, gas, indirect labour, regular maintenance cost etc. Control of variable cost also requires line by line analysis for each individual cost items. The adverse variable cost variance simply reveals that FF incurred more on variable cost than expected. However, it is necessary to take into consideration the causes of this adverse variance, which is beyond the control of the management, for instance, the unusual price hike in vegetables in case of unseasonal rainfall etc.

(iii) Measures to Improve Fast Food Delivery Service Time :

Customers expect that their food order to be delivered quickly. From customer's feedback in the question, it is evident that FF has a problem in food delivery, due to which, customers go unsatisfied. The reason of late delivery could be non-availability of raw material on time or employees not working properly etc. The reason of employees not working properly could be job dissatisfaction which may be due to improper working conditions, low salary, or no reward for overtime etc.

In order to reduce delivery time, raw material should be made available in stock based on daily requirement. FF may follow quantitative approach to inventory problems, which lays down clear guidelines that when to re-order or to alert the management in exceptional situations.

In addition, FF must also address the issues related to employee and involve them in a loop. FF could improve the employee satisfaction with proper working conditions, better pay, training, and growth opportunities.

Moreover, it is important that customers should be informed about approximate delivery time since this will reduce customer's anxiety and will proactively reduce any complaints over long waits for delivery of food. If unexpected delays occur, it is important to communicate with customers, apologies for the delay and inform them about the new approximate delivery time along with valid reason.

In addition to this, FF can also introduce SMS service for expected delivery time or install electronic board displaying ticket number or self-serve kiosk allowing customers to roam around or order in advance so that they do not have long waiting time.

Question 11 : (ICAI website - October, 2019)

Melody is a manufacturer of musical instruments. The company specializes in manufacture of Piano and Electronic Keyboard instruments. They both are labour-intensive products. Therefore, Melody is following absorption costing for its production overheads based on direct labour hours.

Piano

Melody's Pianos are of very high quality. Client patronage include professional Piano musicians. Some of these instruments are sold in its standard form. However, musicians particularly the concert players require their pianos to be customized to certain specifications. Customization primarily relates to the acoustic quality of the piano sound. Quality of sound is of paramount importance to musicians as it determines the power and warmth of tone. Each musician has a preference to achieve a special quality of sound. Therefore, no two customized Pianos can be the same. Due to its reputation, Melody receives numerous requests for customization from its customers. Ability to provide customization service sets Melody apart from its competitors.

Customization requires the services of professional craftsmen. They are hired as subcontractors for such work based on the need. These craftsmen perform their services within the factory premises. For this, a special work space is maintained by Melody. Melody charges its customers extra for sub-contracting cost plus 10%. This would cover the actual cost of subcontracting and any incidental overheads incurred. The Board of Melody accepts that this method of billing is very simplistic. It is unsure if the company is recovering the entire cost of providing this customization service.

Electronic Keyboard Instruments

These instruments manufactured by Melody are home Keyboards that are targeted at young music enthusiasts who are beginning to learn music. They come in standard sizes, comprised of standard components. No customizations are done to Keyboards.

As a performance management expert, the Board wants your advice. The extract below provides the most recent management accounts for the Piano and Keyboard Division.

Figures in ₹

S.N.	Particulars	Piano	Keyboard	Total
1.	Number of items manufactured	1,000	10,000	
2.	Sale Price per unit	2,50,000	15,000	
3.	Revenue	25,00,00,000	15,00,00,000	40,00,00,000
4.	Materials	7,50,00,000	3,75,00,000	11,25,00,000
5.	Direct Labour	8,00,00,000	6,75,00,000	14,75,00,000
6.	Subcontracting Cost	3,75,00,000	-	3,75,00,000
7.	Production Overheads	4,50,00,000	65,00,000	5,15,00,000
8.	Total Cost of Production (4+5+6+7)	23,75,00,000	11,15,00,000	34,90,00,000
9.	Gross Profit (3 – 8)	1,25,00,000	3,85,00,000	5,10,00,000

Production Overheads :

Particulars	Amount (₹)
Inspection and Testing	3,45,00,000
Space Maintenance Cost for Subcontracting Work (rent, utilities, 2 support staff to maintain storage)	50,00,000
Other Production Overheads (rest of the utilities, rent, salary of support staff at storage)	1,20,00,000

Required :

(i) DISCUSS the difference in treatment of production overheads under absorption costing and activity based costing.

(ii) LIST the steps to implement activity based costing within Melody.

(iii) ASSESS whether activity based costing would be suitable for the Piano and Keyboard Divisions.

(iv) ADVISE Melody about the activity based management and ways to improve business performance.

Solution 11 :

(i) Product cost under absorption costing method includes all manufacturing costs that are incurred to produce a product [i.e. direct material, direct labour and production overheads (both fixed and variable)]. The allocation of overheads is determined by a single cost driver based on volume of production (popular ones are machine hours or direct labour hours). This driver is applied to the entire production overhead to arrive at the production overhead rate. For example, in the given problem, labour hours are being used to allocate overheads to Pianos and Keyboards. All production overheads are allocated to products based on this driver irrespective of whether this resource was used by the product or not. For example, production overheads include **maintenance cost relating to space for subcontracting work.** This cost is incurred for the manufacture of Piano alone. This portion of the maintenance cost gets clubbed with other production costs. Eventually, an overhead absorption rate is calculated using the ratio of direct labour hours for each product. Absorption costing would ignore the fact that the manufacture of Keyboards does not utilize the space allocated for subcontracting work. This skews the product costing by erroneously inflating the cost of Keyboards, some portion of the cost of manufacturing Pianos passes onto the product costs for Keyboards. Application of a single cost driver may not be the most appropriate way of allocating costs between products. For example, in the given problem, **factory rent** is clubbed with total production overheads and applied to the product cost as part of the single overhead rate. Absorption costing ignores that direct labour may not be the most appropriate basis to allocate factory rent overhead to the products. Factory rent can be more appropriately allocated to the products on the basis of space occupied for manufacture by each product.

Activity based costing identifies the cost of each activity and assigns costs to units produced based on the number of activities used by each unit. Instead of being clubbed as a single overhead cost, costs for each activity captured in their respective cost pools. The most appropriate cost driver is selected for each cost pool and then the activity cost is charged to each product. Cost drivers could be volume based (machine hours / direct labour) or transaction based (# of purchase orders) or based on no. of batches (say set

up cost) etc. This cost driver is used as the basis to allocate costs to various products based on the utilization of the resources related to that activity. Overhead costs are assumed to be variable, determined (or driven) by the selected cost driver. Here, the **cost of maintaining space for subcontracting** relates entirely to the manufacture of Pianos. Using ABC method, this cost will be allocated only to Piano products since allocation is now based on utilization of the resource to manufacture the product. Again, under this method, **factory rent** could have space utilization as the cost driver. Therefore, using ABC method, the allocation of production overhead to the products will be made on a more logical basis as compared to absorption costing.

To conclude, product costing using absorption costing is relatively simpler, a method regularly followed for financial accounting purposes. Product costing using ABC method results in more detailed yet accurate figures. It highlights the cost / benefit of various activities that helps management focus on eliminating non-value added activities.

(ii) Implementation of ABC Method within Melody would include the following steps :

Activity Mapping : Production process has to be first broken down into various activities. Based on their nature, activities must then be clubbed to form activity pools. Activity pools must then tie in with the products or services. Simply speaking, identify all activities carried out in the organisation.

Cost Pools : Overheads costs are then identified to each activity pools. This gives the cost pool for each category of activity.

Cost Driver : Identify the cost driver that bring about the cost. Cost driver is the factor which drives or influences the cost. For example, space utilization would be a cost driver for factory rent. Cost drivers could be volume based or transaction based.

Overhead Rate : Once the cost pool and cost drivers are identified, the cost per unit of cost driver (overhead recovery rate) is determined. It is popularly called as Activity Cost Driver Rate.

Overhead Cost Allocation : Depending on how much of the resources (i.e. cost drivers) the product utilizes, the cost is allocated accordingly to that product.

Product Cost : The allocated overhead cost is added to the cost of direct materials and labour to arrive at the full cost of production for the product.

(iii) Appropriateness of ABC Method for the Keyboard and Piano Divisions :

The Piano Division receives numerous requests for customization from its customers. While it produces only 1,000 Pianos in a year, no two customizations are the same. Therefore, the range of Pianos manufactured by Melody can be considered varied. Production overheads cost, including subcontracting work, form 35% of the total production cost [(₹ 3,75,00,000 + ₹ 4,50,00,000) / ₹ 23,75,00,000]. Therefore, **overheads form a substantial portion of product cost.** Due to the variety in customization, it is important to price each customization at a rate that will yield an acceptable profit margin to Melody. To do this, manufacturing process has to be segregated into various activities and cost pools. Depending on utilization of resources related to each activity, each Piano can be sold at an appropriate price. If a Piano requires more of a resource from an activity, this can be included in the product cost and factored into the selling price, such that even with customization an acceptable profit margin can be earned. Thus, ABC method can help Melody arrive at a more accurate cost of production as compared to traditional absorption costing.

While, overheads cost is one aspect of ABC analysis, the other information that an organization gets from this framework is that it can identify the activities that add value to the product. At the same time, non-value adding services can be identified (for example storage) and measures can be taken to minimize them. This will helps it to serve the customers better and will gain a competitive edge over others.

The Keyboard Division produces 10,000 Keyboards annually, all sold as a standard product with no customization. Activities are standardized, with no variation in the process between the Keyboards. Production overheads form only 5.83% of total cost of production. (₹ 65,00,000 / ₹ 11,15,00,000). Implementation of ABC method is time consuming and complex. Here, due to the standardized nature of production and low quantum of production overheads, ABC method may not be justified for the time and efforts involved. In this case, absorption costing may seem to be a more practical approach to arrive at product price.

(iv) **Activity Based Management to help Melody improve business performance.**
Activity based management can help Melody to meet the customer needs while using the lowest possible resource or cost. ABM can be used at an operational or strategic level.

Product Pricing
This would be especially in case of the Piano Division. As explained above, ABC method would enable Melody calculate a more accurate cost of production for each Piano. Currently, the **cost of subcontracting work** used for customized Pianos is ₹ 3,75,00,000. This is being charged to the customers with a 10% mark-up to cover for any incidental overhead. However, this is very simplistic approach. As such the mark-up that can be earned under this method will be ₹ 37,50,000. However, the cost of maintenance of the area of subcontracting work itself is higher at ₹ 50,00,000. Therefore, it can be concluded that Melody is not recovering the entire portion of the incidental overheads incurred by providing the subcontracting work.

By identifying the cost pools relating to the subcontracting work, Piano Division can determine that it is making a loss on the subcontract work as a whole. It could therefore adjust the price of customized Pianos such that it earns an acceptable margin on each sale. This is at an operational level. At a strategic level, Melody can determine which type of customizations are most profitable. Customizations that are not very frequent, too complex, and costly may be avoided as it takes away resources from Melody in terms of labour, space etc. At the same time, careful consideration should be given to such decisions since it is this customization service that gives Melody an edge over other competitors. Therefore, Melody should take decisions that help it balance the customer base, while keeping the costs low and processes as standardized as possible.

Analysis of Activities
Implementation of ABC method forces the company to take a more detailed look at its activities that comprise of its manufacturing process. It may be found that certain activities can be performed in more efficient manner. Also, activities can be identified as that add value to the product and those that are not value adding. For example, in the given example, **storage** is not a value adding activity. Melody can work on a system where it optimizes the production process such that storage requirements are lower. The inventory turnover of Piano can also be improved, since quicker the Piano is shipped to the customer, lower the space requirement. **Inspection** is another non-value adding activity. For example, if Melody switches to a standardized procurement system for its raw materials from reputed suppliers, it can save on raw material inspection cost.

Performance Measurement

Employee resource should be used more towards value adding activities. Proper training would be required to ensure acceptable quality of work. This would automatically reduce non-value adding activities like rework, idle time, and inspection. There has to be a proper information system in place that captures such data. This is facilitated through the implementation of ABC costing method and use of ABM. However, to have a successful system, senior management need to be committed to this model, proper communication and training has to be given to employees. To implement such a performance system the management has to commit sufficient time and efforts. Cost benefit considerations of having such systems should also be taken into consideration. To conclude, implementing ABM should itself not consume much of the productive time of employees and become a non-value activity in itself. Hence, proper cost-benefit analysis should be done before implementing ABM.

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11 BUDGETARY CONTROL

Question 1 : [ICAI Website]

Case Scenario

SPM, a leading school of management in the heart of India's financial centre of Mumbai, preparing its budget for 2018. In previous years, the director of the school has prepared the budget without the participation of senior staff and presented it to the school board for approval.

Last year the SPM board blasted the director over the lack of participation of his senior staff in the budget process for 2017 and requested that for the 2018 budget the senior staff were to be involved.

Required

LIST the potential advantages and disadvantages to the SPM of involving the senior staff in the budget preparation process.

Solution 1 :

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 consulted and the management values their experience in the running of 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. It is known as using the 'budget slack'.

Question 2 : [RTP - Nov. 2018]

Case Study : Traditional Budgeting V/s Beyond Budgeting

Magical Stay is a hotel chain that has properties in popular tourist destinations. Each hotel has at least a 50 rooms establishment that has standard, elite and luxury size suites. Currently, the chain has 9 properties spread across World. Magical Stay has its corporate headquarters in Singapore, from where the senior management operate. Operations management executives are based out of each specific property that they cater to. Magical Stay is a public listed company, with majority of its shareholders being institutional investors like mutual funds, banks and insurance companies. Since these investors had a high stake in the company, they had representatives of the board of directors to govern strategic decisions. One of the strategic goals of the company for 2018, was to earn a profit of ₹ 1,500 million and keep increasing this target by 10% each year. Due to recessionary conditions, business has been volatile. Consequently, senior management is under pressure to meet the targets.

In order to have a defined plan for operations, Magical Stay prepares an annual budget for each of the properties as well as one master budget that consolidates at a company level. There is a separate financial and business analysis team that is in charge of this exercise. Key assumptions and future expected trends are discussed at with the operations management of each property. After incorporating the corporate headquarters numbers, the consolidated budget is presented to the senior management for approval. In order to have a uniform policy across locations, key metrics like room rent per day, material procurement for kitchen and rooms, employee hiring, capital investments at each property, advertising and promotional activities are handled directly by the corporate headquarters.

The management at each location is responsible to ensure smooth operations of the hotel chain by implementing these policies. The manager of each hotel property is given a target in terms of revenue to be generated, room occupancy and profit to be achieved. Therefore, the management at each location is also under pressure to perform and meet the target set by the senior management. In the past, if the target had not been met for couple of years, the senior management had closed down the hotel and exited the property. At the same time, best performers are given more liberal budgets to operate on. Hence, competition between various locations has always been fierce. There are constant negotiations for been given a "reasonable / practical target" that has to be achieved.

Monthly meetings are scheduled with the corporate office to explain variance of results from the budget. The recent monthly results have shown that 7 of the 9 properties have consistently not been able to meet the targets in the past six months. The situation is confounded because the tourism industry has been affected greatly by recessionary trends in the global economy. Therefore, the footfalls at the regular tourist places, where the hotel has properties, have reduced considerably. In some places occupancy during peak season has only been 60%. Therefore, operations are bleak and uncertain. At these meetings, the operations management argue that due to this dynamic scenario, the budgeted targets set become obscure since they are not based on the current circumstances.

The corporate office has met with the operations management at each of these properties in order to understand the situation better. Discussions have taken place about how the business can be improved. Few of the suggestions to improve performance are:

(1) When the hotel is not fully booked, especially during off-season, give manager at each property the authority to rent out rooms at an attractive discount. These opportunities have to be encased quickly, therefore the decision about the rate would be better handled by the personnel at the hotel. A guideline on the discount policy can be worked out with the corporate office. This will ensure that room occupancy rates increase, while earning reasonable return.

(2) Allow for procurement of kitchen supplies locally, rather than buying it only from specified authorized vendors. Not only will this be cheaper, it also allows for moderate flexibility with the kitchen menu that can cater to customer demands based on current availability of

supplies. Prior approvals can be taken by the management from the quality control department to ensure that customer satisfaction does not suffer.

(3) A monthly reward and recognition program for employees, based on their service record for the month. Recommendations can be from fellow employees or the location manager.

(4) Allow the location management autonomy, with a reasonable budget to cater to purchasing equipment. In order to address certain urgent requirements or repairs, quick response from the operations management is needed. The current process of getting approval from the corporate office is cumbersome since it takes a longer time. Autonomy can help address these issues quickly without much damage done to customer satisfaction. Funding can be quickly procured from banks if required.

Based on these discussions, the senior management has decided to decentralize all of the above decisions. As a pilot project, they have decided against preparing a line-wise detailed budget (sales budgets, operations cost budgets, advertising etc.) for each location. Instead the operations management will be given clear targets at each of the locations regarding the key profitability ratios, liquidity ratios and leverage ratios, as also guidelines on market share, quality and customer satisfaction. These benchmarks have been finalized based on industry research of peer group companies. However, the managers have the autonomy to achieve the expected target based on their individual business scenarios at each location. The focus is therefore not on achieving budget numbers that have been finalized. Instead management gets growth targets to achieve.

One year after implementing this decision, it was found that company was able to meet the shareholders' expectations, have a robust growth and an energetic employee morale.

Required :

(i) DISCUSS the traditional budgeting process had a negative impact on Magical Stay's operations.

(ii) EXPLAIN the philosophy behind "growth based targets" instead of "budget based targets".

Answer 2 :

(i) Magical Stay is operating in a business scenario that is highly competitive and dynamic. Focus of the traditional budget was driven towards achievement of the company's strategic goal, which was profit target of ₹ 1,500 million for the year 2018. Accordingly, the senior management followed a top-down approach to budgeting. Most important policy decisions like room rent per day, material procurement, employee hiring, capital investments at each property, advertising and promotional activities are handled directly by the corporate headquarters. Management in charge of operations at each location only implement it. In a changing business scenario, this budgeting methodology has the following shortcomings:

(a) Budgets based on these policies may not be flexible enough in a fast-changing business environment. Although it is based on assumptions and expectations that the management has made about the business growth, in a dynamic scenario, it is very difficult to predict the future accurately. Therefore, targets or benchmarks set by the traditional budgets may become outdated quickly.

(b) These budgets were based on business functions like sales, advertising, operations etc. While a strategy for these functions is important, they are based on internal benchmarks and assumptions made by the management. However, for the company to be flexible in a changing environment, the focus should also be on external factors.

(c) The management aims to make a yearly profit that is 10% more than the previous year's profit. If previous year profit alone is the benchmark for growth, certain decisions may be shelved because they may decrease current year's profits below target. However, had these decisions been implemented they may have generated value in the long term and ultimately may have been better for earning profits in future years. For example, certain

capital expenditures that may need to be undertaken quickly in order to improve customer satisfaction, may not be incurred at all simply because there is no budget for it.

(d) Operations management did not have much autonomy since policies were controlled at the corporate headquarters. At the same time, they were responsible for achieving the targets set out as per the budget. Responsibility without authority creates a negative working environment. Consequently, it might be difficult to retain talented personnel.

(e) In order to meet budget targets, managers may try to negotiate for lower sales targets to achieve, more budget allocations to meet costs etc. This does not foster positive business growth. Managers are more intent in meeting targets rather than focusing on business growth. It leads to lower sales than can otherwise be achieved and leads to protection of costs rather than working towards lowering operational costs.

It can be concluded that the traditional budgeting process was more inward looking. Focus was on achieving budget target rather than implementing strategies that can create more value to the company.

(ii) After receiving feedback from operations managers, the management has given them targets based on growth instead of those based on the budget alone. This is the philosophy of "beyond budgeting". Below are the features of this philosophy that has enabled Magical Stay to achieve better results:

(a) It is a more decentralized and participative way of operating a business. Rather than being made responsible for business decisions, which were not in their control, now the employees are given responsibility, combined with the necessary authority to execute decisions.

(b) Operations management and the personnel at each location are capable of quickly adapting to changing market scenarios. Likewise, since they interact with the customers directly, it enables them to make quicker decisions to ensure customer satisfaction or identify opportunities to generate more revenue.

(c) Targets are based on performance of peer group companies. Benchmarks based on peer group performance will be unbiased and reflects the current business scenario better. Due to this, customer's needs and satisfaction automatically gets priority. It is the customer who ultimately drive business growth. Therefore, rather than having an inward-looking approach, focus has now shifted to the external market conditions. Due to autonomy, managers at various locations need not compete with each other for budget allocation. This channelizes the operational focus to meet challenges from outside competitors rather than having detrimental competition within the organization. At the same time, the targets for the company are also based on guidelines from the corporate office. Therefore, there is congregation of goals with the shareholders' expectations.

(d) Employee morale is also boosted due to the monthly reward and recognition system. It fosters healthy competition among employees.

Since the focus is on growth, beyond budgeting can be a way of achieving better results in challenging business environment.

Question 3 : [Nov. 2018 Exam - 10 Marks]

The Board of Directors meeting of T.K. Motors Ltd., a car manufacturing company is to be scheduled to be held in another ten days. One of the items, as per agenda, to be discussed in the meeting is the present budgeting system of the company. Your organisation is at present, using budgets for control which are prepared mostly on traditional basis. The CEO of your company wants to propose to the Board to use Beyond Budgeting instead of traditional budgeting in the company on experimental basis.

Therefore, you, the Management Accountant has been asked by your CEO to explore the possibilities of introducing Beyond Budgeting (BB) system in the company. Specifically, you are required to prepare notes to your CEO to be used for his presentation at the meeting on :

(i) The major limitations of traditional budgets.
(ii) The advantages available in Beyond Budgeting.
(iii) The nature of Beyond Budgeting.
(iv) The benefits that can be enjoyed from Beyond Budgeting.
(v) The suitability of Beyond Budgeting to the company.

Solution 3 :

(i) Limitations of Traditional Budgeting :

- Time-consuming and costly to put together
- Constrain responsiveness and flexibility
- Often a barrier to change
- Rarely strategically focused and are often contradictory
- Add little value, especially given the time required to prepare
- Concentrate on cost reduction and not on value creation
- Developed and updated too infrequently, usually annually
- Are based on unsupported assumptions and guesswork
- Reinforce departmental barriers rather than encourage knowledge sharing
- Make people feel undervalued.

(ii) Advantages of Beyond Budgeting (BB) :

BB identifies its two main advantages.

- It is more 'adaptive process' than traditional budgeting.
- It is a 'decentralised process' unlike traditional budgeting where leaders plan and control organisations centrally.

(iii) Nature of Beyond Budgeting (BB) :

- Budgeting is *evolving*, rather than becoming obsolete, - it depends on trust and transparency.
- Shift from the top-down, centralised process to a more *participative*, bottom-up exercise in many firms.
- It highlights the level of *improvement* that can be achieved even with relatively simple modifications and a great deal of trust.
- Budgeting has changed, the change has been neither dramatic nor radical. Instead, *incremental improvements*, with traditional budgets being supplemented by new tools and techniques.
- *Forecasting* in fact is more important.

(iv) Benefits of Beyond Budgeting (BB) :

- Beyond budgeting helps managers to work in coordination to beat the competition. Internal rivalry between managers is reduced as target shifts to competitors.
- Helps in motivating individuals by defining clear responsibilities and challenges.
- It eliminates some behavioral issues by making rewards team based.
- Proper delegation of authority to operational managers who are close to the concerned action and can react quickly.
- Operational managers do not restrict themselves to budget limits and focus on achieving key ratios.
- It establishes customer orientated teams.
- It creates information systems which provide fast and open information throughout the organisation.

(v) Suitability of Beyond Budgeting (BB) :

- Industries where there is a rapid change in the business environment - Flexible targets will be responsive to change.
- Industries using management methods such as TQM – Continuous improvement will be the key.
- Industries undergoing radical change like BPR – Targets may be hard to achieve in such circumstances.

Since T.K. Motors Ltd., is a car manufacturing company and presently adopting Traditional Costing system, it would be suitable for such company to shift to Beyond Budgeting to gain the advantages over traditional budgeting.

Question 4 : [ICAI Module]

Case Scenario : Participative Budget Model

Established in the year 1997, **Excellent Woodcraft** Private Limited (EWPL) is one of the distinguished manufacturers and suppliers of an unlimited array of Wooden Furniture Items. Product compilation comprises of Modular Furniture, Workstations, and Cafeteria Furniture. Moreover, it is also engaged in presenting Furniture Services that include Interior Fit Out, Office Interiors and Corporate Interior Designing. Since inception, it has strived to offer an excellent blend of optimum quality and price, and successfully established the company as the preferred choice of customers in the past years. This is the reason that its products and services are applauded in the industry for its flawlessness.

At EWPL, a world-class infrastructure is set up with different types of latest technology based machines and equipment, which provide great support in hassle-free production and storage of the offered assortment. Besides the spacious workspace, it has recruited a team of skilled and experienced professionals, who are magnificently trained to understand and meet the diverse client requirements within the committed time period. It aims to attain complete client satisfaction and put in its best efforts to achieve the same by offering outstanding product range & feasible services.

EWPL's Budgeting Process for Sales -

1) Each salesgirl makes a customer-wise listing of sales for the last few years. Based on this information and her knowledge about customer's requirements, she determines an overall sales goal.
2) The sales manager, W Robert, gathers all this information and modifies it a bit. Particularly, W looks at variance in sales growth and modifies low projections to be in line with the average. He, of course, discusses this correction with the concerned salesgirl. The usual approach is to hold up the other forecasts and attribute lack of sales growth to lower talent.
3) W then meets with J Donald, Managing Director. By this time, J already back out of his sales expectations for next year based on his desired profit. J discusses the overall target with the

W. The usual result is a 7% to 10% increase in projected sales, which the W allocates among the salesgirls based on their past performance.

4) Of course, J desires that the W discuss and negotiate any alteration with the sales force. He believes that with appropriate logics, not high but attainable targets for his sales team can be met.

Required :

(i) DISCUSS the participative nature of the sales budgeting process at EWPL.

(ii) ADVISE on the best approach from EWPL's perspective that may be adopted.

Solution 4 :

(i) In participative budgeting, subordinate managers create their own budget and these budgets are reviewed by senior management. Such budget communicates a sense of responsibility to subordinate managers and fosters creativity. This is also called bottom up approach (sometime referred as participative approach).

As the subordinate manager creates the budget, it might be possible that the budget's goals become the manager's personal goal, resulting in greater goal congruence. In addition to the behavioral benefits, participative budgeting also has the advantage of involving individuals whose knowledge of local conditions may enhance the entire planning process.

The participative budget described here appears participative in name only. In virtually every instance, the participative input is subject to oversight and discussion by sales manager. Some amount of revision is also common. However, excessive and arbitrary review that substitutes a top-down target for a bottom-up estimate makes a deceit process. Such a setting appears to be the case in EWPL. J's statement indicates a very autocratic style. The revision process also seems to be arbitrary. There is little incentive for the salesgirls to spend much time and effort in projecting the true expected sales because they know that the target would be revised again and J's estimate will prevail. This situation creates an interesting discussion about the costs and benefits of participative budgeting and give rise to game playing and slack.

(ii) In top down approach, budget figures will be imposed on sales personnel by senior management and sales personnel will have a very little participation in the budget process. Such budget will not interest them since it ignores their involvement altogether. While in bottom up approach, each sales person will prepare their own budget. These budgets will be combined and reviewed by seniors with adjustment being made to coordinate the needs and goals of overall company. Proponents of this approach is that salespersons have the best information of customer's requirements, therefore they are in the best position in setting the sales goal of the company. More importantly, salespersons who have role in setting these goals are more motivated to achieve these goals. However, this approach is time-consuming and very costly when compared with top down approach. In order to achieve personal goals, participants may also engage in politics that create budgetary slack and other problems in the budget system.

Since both top down and bottom up approaches are legitimate approaches, so EWPL can use combination of both. Seniors know the strategic direction of the company and the important external factors that affect it, so they might prepare a set of planning guidelines for the salesgirls. These guidelines may include forecast of key economic variables and their potential impact on the EWPL, plans for introducing and advertising a new product and some broad sales targets etc. With these guidelines, salesgirls might prepare their individual budget. These budgets needs to be reviewed to validate the uniformity with the EWPL's objectives. After review, if changes are to be made, the same should be discussed with salesgirls involved.

Question No. 5 : [Nov. 2019 Exam]

SW& Co. is a firm of Chartered Accountants having head office at Delhi and four branches in different parts of Northern region. They are providing wide range of services to their esteemed clients. Their core services include Taxation, Corporate Audits, Bank Audits, Management Audits and Project financing. The firm is preparing its budgets for the financial year 2019-2020.

The senior partners of the firm have stated that they would like to pay off the firm's loan taken from a public sector bank two years back for the renovation of their office premises this year and to have a positive cash reserve of ₹ 2,00,000 by the end of the year.

While comparing the actual cost with the budgeted data of last year, it was revealed that travelling costs were much higher than the budgeted costs. Fees receivable from some clients were also pending for more than three years thus distorting the expectations of cash budget.

Discuss the differences between feed forward control and feedback control using the above information about the cash budget of SW & Co. [10 Marks]

Solution 5 :

Feed forward control systems are the comparison of draft plans with the objectives of the company.

In the scenario provided the consultancy firm has a number of objectives, two of which are related to their cash flow. The first of these is to pay off the loan by the year end and the second is to have a positive cash reserve of ₹ 2,00,000 by the year end.

An initial draft of the cash budget will be produced based on the expected receipts and payments and other costs of the firm. Cash budgets to be prepared showing the cash inflows and outflows for each month so that the firm can identify its expected monthly cash balance. This can be compared with the company's objectives to see if their cash balance objectives are being achieved. It is this comparison that is the process of feed forward control.

It is also referred to as a preventive control. The rationale behind feed forward control is to foresee potential problems and take corrective action to ensure that the final output is as expected. Feed forward controls are desirable because they allow management to prevent problems rather than having to cure them later. Feed forward controls are costly to implement as it requires additional resources and investments.

Feedback control systems are the comparison of actual results against the budget that has been approved. Thus, in the context of the SW & Co., actual travelling costs comparison made against the budgeted costs and overdue fees receivables are also the process of feedback control.

As with any budget and actual comparison there may be an adverse or favorable variance. If this is significant then further analysis may be required to determine its cause. This comparison process is feedback control. It is also known as post action control. If any problem is identified after a process is complete, a corrective action is taken to rectify the problem. Feedback based system have the advantage of being simple and easy to implement.

Thus, initially the difference between feed forward control and feedback control systems is that feed forward occurs in the budget setting stage whereas feedback control occurs during the year. This means that feed forward identifies potential problems before they occur whereas feedback identifies problems after they have happened.

* * * * *

12 STANDARD COSTING

Questions on Material Cost Variance

PROBLEM 1 :

The standard mix of a product is -

X	60 units at 15 paise per unit
Y	80 units at 20 paise per unit
Z	100 units at 25 paise per unit
Total	240 units

Ten units of finished product should be obtained from this mix.

During the month of February, ten mixes were completed and the consumption was -

		Rs.
X	640 units at 20 paise per unit	128
Y	960 units at 15 paise per unit	144
Z	840 units at 30 paise per unit	252

Actual output was 90 units. Compute material cost variances.

ANSWER 1 :

1) Total Cost Variance = (Std. cost of Actual Output) - (Actual cost)

Std. cost for one mix of 10 units of output is given. Actual output is 90 units.

Therefore, std. cost for 90 units will be 9 times of the std. given for 10 units.

Standard Cost of actual output

= Standard qty. of material required for actual output x Standard price.

X = 60 units x 90/10	= 540 units x 0.15	= 81
Y = 80 units x 90/10	= 720 units x 0.20	= 144
Z = 100 units x 90/10	= 900 units x 0.25	= 225
Total	= 2160 units	Rs. 450

Therefore, Cost Variance = Rs. 450 - Rs. 524 = Rs. 74 (A)

2) Price **Variance** = Actual qty. consumed X (Std. price - Actual price)

X	640 units (Rs. 0.15 - Rs. 0.20) =	Rs. 32 (A)
Y	960 units (Rs. 0.20 - Rs. 0.15) =	Rs. 48 (F)
Z	840 units (Rs. 0.25 - Rs. 0.30) =	Rs. 42 (A)
Total		Rs. 26 (A)

3) Usage Variance = Std. Price x (Std. qty. - Actual qty.)

X	Rs. 0.15 (540 units - 640 units) =	15 (A)
Y	Rs. 0.20 (720 units - 960 units) =	48 (A)
Z	Rs. 0.25 (900 units - 840 units) =	15 (F)
Total		48 (A)

4) Mix Variance = Std. price x (Std. mix - Actual mix)

Std. Mixing proportion is 6 : 8 : 10

Material	Std. price	Calculation	Std. Mix	Actual Mix	Variance
X	0.15	2440 x 6/24	610	640	4.50 (A)
Y	0.20	2440 x 8/24	813	960	29.40 (A)
Z	0.25	2440 x 10/24	1017	840	44.25 (F)
Total			2440	2440	10.35 (F)

5) Yield Variance = Std. cost of per unit of output x (Std. Yield - Actual Yield)

= Rs. 450/90 units x [(2440 x 10/240) - 90 units]

= Rs. 5 (101.67 - 90) = Rs. 58.35 (A)

OR

Sub usage variance = Std. price x (Std. qty. - Std. mix)

X	Rs. 0.15 (540 units - 610 units) =	Rs. 10.50 (A)
Y	Rs. 0.20 (720 units - 813 units) =	Rs. 18.60 (A)
Z	Rs. 0.25 (900 units - 1017 units) =	Rs. 29.25 (A)
Total		58.35 (A)

Analysis of Material Cost Variance

Total cost variance = Rs. 74 (A)

Price Variance = Rs. 26 (A) Usage Variance = Rs. 48(A)

Mix Variance = Rs. 10.35(F) Yield Variance = Rs. 58.35(A)

PROBLEM 2 :

In manufacturing process, the following standards apply –

Standard Price : Raw material X Rs. 1 per kg.

Raw material Y Rs. 5 per kg.

Standard Mix : 75% - X , 25% - Y (by weight)

Standard Yield (weight of product as percentage of weight of raw materials) : 90%

In a period, the Actual Cost, Usage and Output were as follows –

Used :	4,400 kgs. of X costing Rs. 4,650
	1,600 kgs. of Y costing Rs. 7,850
Output :	5,670 kgs of products

The budgeted output for the period was 7,200 kgs.

Prepare an analysis showing the Material Cost Variances.

ANSWER 2 :

1) **Total cost variance** = (Standard cost of actual output) - (Actual cost)

Std. cost = Std. qty. of material required for actual output x std. price

Where, Actual output = 5670 kg. and Standard yield = 90%

Therefore, Standard input required = 5670 Kg./ 90% = 6300 kg.

Therefore, Qty. of X = 75 % of 6300 = 4725 kg.

& Qty. of Y = 25 % of 6300 = 1575 kg.

Therefore, **Cost Variance** = (Standard cost of actual output) - (Actual cost)

X : 4725 kg. x Rs. 1 = Rs. 4725 - Rs. 4650 = Rs. 75 (F)

Y : 1575 kg. x Rs. 5 = Rs. 7875 - Rs. 7850 = Rs. 25 (F) Total 100 (F)

2) Price Variance = Actual qty. consumed x (Std. price - Actual price)

X :	4400 kg. (Rs.1 - 4650/4400)	= Rs. 250 (A)
Y :	1600 kg. (Rs.5 - 7850/1600)	= Rs. 150 (F)
	Total	= Rs. 100 (A)

3) Material usage variance = Std. price x (Std. qty. - Actual qty.)

X :	Rs. 1 (4725 kg. - 4400 kg.) =	Rs. 325 (F)
Y :	Rs. 5 (1575 kg. - 1600 kg.) =	Rs. 125 (A)
	Total	Rs. 200 (F)

4) Mix Variance = Std. price x (Std. Mix - Actual Mix)

	Std. price Rs.	Calculation	Std. Mix kg.	Actual Mix kg.	Variance Rs.
X	1	6000 x 75 %	4500	4400	100 (F)
Y	5	6000 x 25 %	1500	1600	500 (A)
		Total	6000	6000	400(A)

5) Yield Variance = Std. cost of per unit of output x (Std. Yield - Actual Yield)
= Rs. 12,600/5670 kg. x [(90 % of 6000 kg.) – 5,670 kg.]
= Rs. 2.22 x [5400 kg. - 5670 kg.] = Rs. 600 (F)

Analysis of Variance

Total cost variance = Rs. 100 (F)

Price Variance = Rs. 100 (A) Usage Variance = Rs. 200 (F)

Mix Variance = Rs. 400(A) Yield Variance = Rs. 600 (F)

PROBLEM 3 :

Gemini Chemical Industries provides the following information from their records -

For making 10 kgs. of GEMCO, the standard material requirement is –

Material	Quantity (kg)	Rate per kg (Rs.)
A	8	6
B	4	4

During April, 1,000 kgs. of GEMCO were produced. The following actual consumption of material is as under –

Material	Quantity (kg)	Rate per kg. (Rs.)
A	750	7
B	500	5

Calculate Material Cost Variances.

ANSWER 3 :

1) Total Cost Variance = (Std. cost of Actual output) - (Actual cost)

Std. cost = Std. qty. required for Actual output x Std. price

A = (1000 kg.x 8/10) x Rs. 6 = Rs. 4800

B = (1000 kg.x 4/10) x Rs. 4 = Rs. 1600

Total Rs. 6400

Actual cost = Actual qty. x Actual price

A : 750 kg. x Rs. 7 = Rs. 5250

B : 500 kg. x Rs. 5 = Rs. 2500

Total Rs. 7750

Therefore, Cost Variance = Rs. 6400 - Rs. 7750 = Rs. 1350 (A)

2) Material Price Variance = Actual qty. consumed x (Std. price - Actual price)

A : 750 kg. (Rs. 6 - Rs. 7) = Rs. 750 (A)

B : 500 kg. (Rs. 4 - Rs. 5) = Rs. 500 (A)

Total Rs. 1250 (A)

3) Material Usage variance = Std. price x (Std. qty. - Actual qty.)

A : Rs. 6(800 kg. - 750 kg.) = Rs. 300 (F)

B : Rs. 4(400 kg. - 500 kg.) = Rs. 400 (A)

Total Rs. 100 (A)

4) Material Mix variance = Std. price x (Std. mix - Actual mix)

	Std. price Rs.	Calculation kg.	Std. mix kg.	Actual mix Rs.	Variance
A	6	1250 x 8/12	833	750	498 (F)
B	4	1250 x 4/12	417	500	332 (A)
			1250	1250	166 (F)

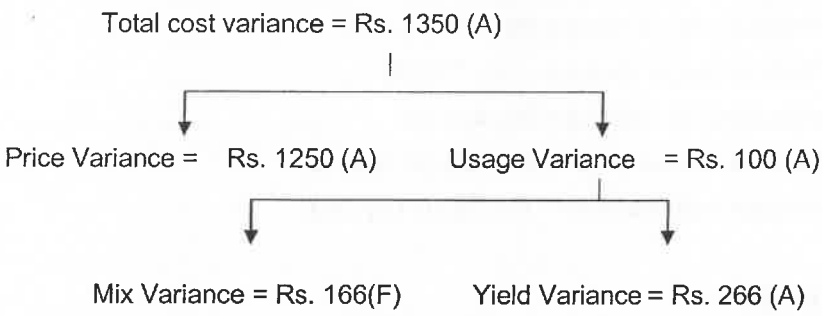
5) Material Yield variance = Std. cost per kg of output x (Std. yield - Actual yield)

= Rs. 6400/1000 x [(1250 kg. x 10)/12 - 1000 kg.]

= Rs. 6.4 x (1041.67 kg. - 1000 kg.)

= Rs. 266.67 (A) say Rs. 266 (A)

Analysis of Variance



PROBLEM 4 :

The standard material and standard cost per kg. of material required for the production of one unit of product A is as follows :

Material 5 kg.; Standard Price Rs. 5 per kg.

The actual production and related material data are as follows :-

400 units of Product A produced; Material used 2,200 kg.; Price of Material Rs. 4.80 per kg.

Calculate: (1) Material cost variance

(2) Material usage variance

(3) Material price variance

ANSWER 4 :

(1) Material cost variance = Rs. 560 (A)

(2) Material usage variance = Rs. 1,000 (A)

(3) Material price variance = Rs. 440 (F)

PROBLEM 5 :

The standard quantity and standard price of raw material required for one unit of product A are given as follows :

	Quantity	Std. Price
Material X	2 kg.	Rs. 3 per kg.
Material Y	4 kg.	Rs. 2 per kg.

The actual production and relevant data are as follows :

Output 500 units of Product A

Material	Total Quantity for 500 units	Total cost Rs.
X	1,100 kg.	3,410
Y	1,800 kg.	3,960

Calculate material cost variances.

ANSWER 5 :

(1) Material cost variance = Rs. 370 (A)

(2) Material usage variance = Rs. 100 (F)

(3) Material price variance = Rs. 470 (A)

(4) Material mix variance = Rs. 133 (A) Approx.

(5) Material yield variance = Rs. 233 (F) Approx.

PROBLEM 6 :

From the following you are required to calculate -

(a) Material price variance (b) Material usage variance (c) Material cost variance

Quantity of material purchased 3,000 units; Value of material purchased Rs. 9,000

Material required for one ton of finished product = 25 units

Standard rate of material Rs. 2 per unit

Opening stock of material nil; Closing stock of material 500 units

Finished production during the period 80 tons.

ANSWER 6 :

(1) Material cost variance = Rs. 3,500 (A)

(2) Material usage variance = Rs. 1,000 (A)

(3) Material price variance = Rs. 2,500 (A)

PROBLEM 7 :

The standard material cost for 100 kg. of chemical D is made up of :-

Chemical A - 30 kg. @ Rs. 4 per kg.

Chemical B - 40 kg. @ Rs. 5 per kg.

Chemical C - 80 kg. @ Rs. 6 per kg.

In a batch, 500 kg. of chemical D were produced from a mix of :

Chemical A - 140 kg. at a cost of Rs. 588

Chemical B - 220 kg. at a cost of Rs. 1,056

Chemical C - 440 kg. at a cost of Rs. 2,860

Calculate material cost variances.

ANSWER 7 :

(1) Material cost variance = Rs. 504 (A)

(2) Material usage variance = Rs. 300 (A)

(3) Material price variance = Rs. 204 (A)

(4) Material mix variance = Rs. 33 (A) Approx.

(5) Material yield variance = Rs. 267 (A) Approx.

PROBLEM NO. 8 :

The standard cost for producing 180 kgs. of a product whose raw material inputs are A and B is given below:

Standard Cost	**(₹)**
Material A 60 kgs @ ₹10 per kg	600
Material B 140 kgs @ ₹ 2 per kg	280

The actual prices of A and B were ₹ 12 and ₹ 8 per kg respectively. Consumption of B was 108 kg. The actual output at 80% yield was 144 kg.

Calculate the following direct material variances:

(i) Mix variance (ii) Yield variance

(iii) Price variance (iv) Usage variance

ANSWER 8 :

(i) Actual output = 144 kgs. And actual yield = 80%

$\therefore$ Actual total input = $\frac{144}{80\%}$ = 180 kgs.

$\therefore$ Actual input of A = 180 – 108 = 72 kgs.

Mix Variance = Std. Price x (Std. Mix – Actual Mix)

A	= 10 x	(54	–	72)	=	180 (A)
B	= 2 x	(126	–	108)	=	36(F)
Total		180		180		144(A)
		(6:14)				

(ii) Yield Variance i.e. Sub-usage Variance

Std. data given in question is 60 & 140 kgs. of input for 180 kgs. of output. Hence, for actual output of 144 kgs, what shall be the input?

$$A = \frac{60}{180} \times 144 = 48 \text{ kgs}$$

$$B = \frac{140}{180} \times 144 = 112 \text{ kgs}$$

Sub-usage Variance = Std. Price x (Std. Qty – Std. Mix)

A	=	10 x (48 – 54)	=	60(A)
B	=	2 x (112 – 126)	=	28(A)
Total	=			88(A)

(iii) **Price variance** = Actual Qty x (Std. Price – Actual Price)

A = 72 x (10 – 12)	= 144(A)
B = 108 x (2 – 8)	= 648(A)
Total	792(A)

(iv) **Usage Variance** = Std. Price x (Std. Qty. – Actual Qty.)

A = 10 x (48 – 72)	= 240(A)
B = 2 x (112 – 108)	= 8(F)
Total	= 232(A)

Questions on Labour Cost Variance

PROBLEM 9 :

The standard time and rate for unit component A are given below :-

Standard hours	15
Standard rate	Rs. 4 per hour

The actual data and related information are as under.

Actual production	1,000 units
Actual hours	15,300 hrs.
Actual rate	Rs. 3.90 per hour.

Calculate - (i) labour cost variance,
(ii) labour efficiency variance and
(iii) labour rate variance.

ANSWER 9 :

(a) labour cost variance	= Rs. 330 (F)
(b) labour efficiency variance	= Rs. 1,200 (A)
(c) labour rate variance	= Rs. 1,530 (F)

PROBLEM 10 :

Standard labour hours and rate for production of Article A are given below :-

Particulars	Hrs.	Rate (Rs.)	Total (Rs.)
Skilled worker	5	1.50 per hour	7.50
Unskilled worker	8	0.50 per hour	4.00
Semi-skilled worker	4	0.75 per hour	3.00
			14.50

Actual data -

Particulars		Rate per hour (Rs.)	Total (Rs.)
Article produced	1,000 units		
Skilled worker	4,500 hrs.	2.00	9,000
Unskilled worker	10,000 hrs.	0.45	4,500
Semi-skilled worker	4,200 hrs.	0.75	3,150
Total			16,650

Calculate : All labour cost variances.

ANSWER 10 :

(a) labour cost variance = Rs. 2,150 (A)

(b) labour rate variance = Rs. 1,750 (A)

(c) labour efficiency variance = Rs. 400 (A)

(d) labour mix variance = Rs. 1,050 (F)

(e) labour sub-efficiency variance = Rs. 1,450 (A)

PROBLEM 11 :

The details regarding the composition and the weekly wage rates of labour force engaged on a job, scheduled to be completed in 30 weeks are as follows :

Category of Worker	Standard data		Actual Data	
	No. of Workers	Weekly wage rate	No. of Workers	Weekly wage rate
Skilled	75	60	70	70
Semi-skilled	45	40	30	50
Unskilled	60	30	80	20

The work is completed in 32 weeks. Calculate various labour cost variances.

ANSWER 11 :

(a) labour cost variance = Rs. 13,000 (A)

(b) labour rate variance = Rs. 6,400 (A)

(c) labour efficiency variance = Rs. 6,600 (A)

(d) labour mix variance = Rs. 9,600 (F)

(e) labour sub-efficiency variance = Rs. 16,200 (A)

Questions on Variable OH Cost Variance

PROBLEM 12 :

From the following data relating to Modern Manufacturers, prepare Variable Overhead Variance Analysis.

STANDARDS :

Production Capacity 2,500 units

Hours required per unit of production = 4 hrs.

Budgeted Rate = Rs. 1.70 per standard hour.

ACTUALS : Production 2,000 units

Hours worked 9,000 hours

Variable Overhead Rs. 14,250

ANSWER 12 :

SRR / Hour = Rs. 1.70 (given)

SRR / Unit = (Rs. 1.70 x 4 hrs.) = Rs. 6.80

1) Total cost variance

= (Actual output x SRR/unit) - Actual overheads

= (2000 units x Rs. 6.80) - Rs. 14,250

= Rs. 13,600 - Rs. 14,250 = Rs. 650 (A)

2) Expenditure variance

= (Actual hrs. x SRR / hr.) - Actual overheads

= (9,000 hrs. x Rs. 1.70) - Rs. 14,250

= Rs. 15,300 - Rs. 14,250 = Rs. 1,050 (F)

3) Efficiency variance

= SRR per hour x (Std. Hours for actual output - Actual Hours)

= Rs. 1.70 x [(2,000 units x 4 hrs.) - 9,000 hours]

= Rs. 1.70 x (8,000 hours - 9,000 hours)

= Rs. 1.70 x 1,000 hours extra taken

= Rs. 1,700 (A)

Analysis of Variance

Total cost variance = Rs. 650 (A)

Expenditure Variance = Rs. 1050 (F) Efficiency Variance = Rs. 1,700 (A)

Questions on Fixed OH Cost Variance

PROBLEM 13 :

In department A, the following data is submitted for the week ended 20th June.

Standard output for 40 hours per week	1,400 units
Standard Fixed Overheads (Budget)	Rs. 1,400
Actual Output	1,200 units
Actual Hours worked	32 hours
Actual Fixed Overheads	Rs. 1,500

Prepare a statement of fixed overhead variances.

ANSWER 13 :

Working notes :-

a) Standard Rate of Recovery per unit (SRR per unit) :-

= Budgeted overheads / Budgeted output

= Rs. 1400 / 1400 units = Rs. 1 per unit.

b) Standard Rate of Recovery per hour (SRR / hr.) :-

= Budgeted overheads / Budgeted hrs

= Rs. 1400 / 40 hrs. = Rs. 35 per hr.

Calculation of fixed cost variance :-

1) Total cost variance = (SRR/unit x Actual output) - Actual overheads

= (Rs. 1 x 1200 units) - Rs. 1500

= Rs. 1200 - Rs. 1500 = Rs. 300 (A)

2) Expenditure variance = Budgeted overheads - Actual overheads

= Rs. 1400 - Rs. 1500 = Rs. 100 (A)

3) Volume variance = SRR per unit x (Budgeted output - Actual output)

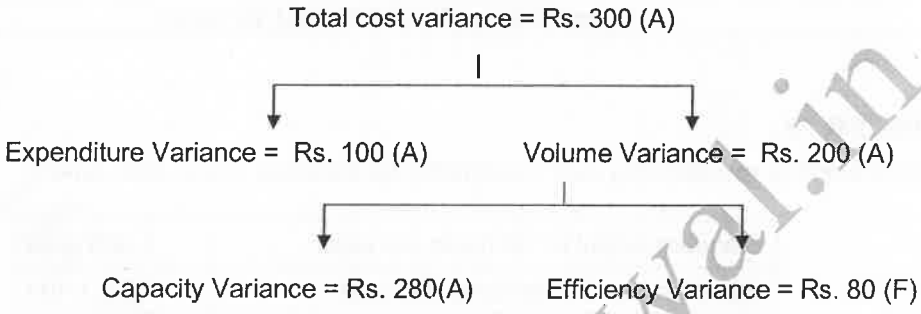
= Rs. 1 x (1400 units - 1200 units) = Rs. 200 (A)

4) Capacity variance = SRR/hr. x (Budgeted hrs. - Actual hrs.)

= Rs. 35 x (40 hrs. - 32 hrs.) = Rs. 280 (A)

5) Efficiency variance = SRR/unit x (Std. output in actual hrs. - Actual output)
= Rs. 1 x [(32 hrs. x 35 units) - 1200 units]
= Rs. 1 x (1120 units - 1200 units) = Rs. 80 (F)

Analysis of Variances



PROBLEM 14 :

From the following data, calculate overhead cost variances –

Particulars	Budget	Actual
Production (Units)	10,000	12,000
Hours	20,000	22,000
Variable overheads (Rs.)	20,000	26,000
Fixed overheads (Rs.)	15,000	20,000

ANSWER 14 :

Particulars	Variable OH	Fixed OH
Cost Variance	Rs. 2,000 (A)	Rs. 2,000 (A)
Expenditure Variance	Rs. 4,000 (A)	Rs. 5,000 (A)
Volume Variance	—	Rs. 3,000 (F)
Efficiency Variance	Rs. 2,000 (F)	Rs. 1,500 (F)
Capacity Variance	—	Rs. 1,500 (F)

PROBLEM 15 :

A manufacturing company operates a costing system and showed the following data in respect of the month of November.

Actual No. of working days	22
Actual man hours worked during the month	4,300
Number of products produced	425
Actual Fixed overhead incurred (Rs.)	1,800

Relevant information from the company's budget and standard cost are as follows :

Budgeted number of working days per month	20
Budgeted man hours per month	4,000
Standard man hours per product	10
Standard fixed overhead rate per man hour	50 paise

You are required to calculate Fixed Overhead cost variances for the month of November.

ANSWER 15 :

Cost Variance	325 (F)	Expenditure Variance	200 (F)
Volume Variance	125 (F)	Calendar Variance	200 (F)
Capacity Variance	50 (A)	Efficiency Variance	25 (A)

PROBLEM 16 :

From the following standard and actual data of Product A you are required to calculate :

(a) Overhead cost variance (b) Overhead budget variance

(c) Overhead efficiency variance (d) Overhead calendar variance

(e) Overhead capacity variance (f) Overhead volume variance.

Standard / Budget data :

Standard hrs. for the period 2,400

Standard No. of days 25

Standard fixed overhead Rs. 1,200

Standard production 1,500 units

Actual data :

Hours worked 2,500 hrs.

Days worked 27

Overhead cost Rs. 1,300

Actual production 1,600 units

ANSWER 16 :

Cost Variance	20 (A)	Budget Variance	100 (A)
Volume Variance	80 (F)	Calendar Variance	96 (F)
Capacity Variance	46 (A)	Efficiency Variance	30 (F)

Hint : Expenditure variance is also called as budget variance.

PROBLEM 17 :

ABC Limited provides the following information for April :

Particulars	Budget	Actual
Number of working days	20	21
Man hours	40,000	43,000
Output per man hour (units)	3.2	3.0
Overhead – Fixed (Rs.)	32,000	31,500
Variable (Rs.)	1,02,400	1,14,400

Required :

Compute variable overhead variances, fixed overhead variances and total overhead variance.

ANSWER 17 : **ABC Ltd.**

1. Standard data :

Particulars		Fixed OH	Variable OH
a. Budgeted OH	Rs.	32,000	1,02,400
b. Budgeted man hour	Hrs.	40,000	40,000
c. Std. rate of recovery/ hour (Std. Hr.)(a / b)	Rs.	0.80	2.56
d. Budgeted output (units)(40,000 x 3.2 units)	Units	1,28,000	1,28,000
e. Std. rate of recovery (SRR/unit) (a/d)	Rs.	0.25	0.80
f. Budgeted no. of working days	Day	20	--
g. SRR /day (a / f)	Rs.	1,600	--

Actual Output = Man hours x Output per man hrs. = 43,000 hrs. x 3 units = 1,29,000 units

2. Calculation of Variable OH Cost Variance -

(i) Variable Cost Variance = (SRR/ unit x Actual output) – Actual OH

= [(0.80) x (43,000 hrs. x 3 unit/ hrs.)] – Rs.1,14,400

= Rs.1,03,200 – Rs.1,14,400 = Rs. 11,200 (A)

(ii) Expenditure variance = (SRR/ hrs. x Actual hrs.) – Actual OH
= (Rs.2.56 x 43,000 hrs.) – Rs.1,14,400 = Rs. 4,320 (A)

(iii) Efficiency variance = SRR/ hrs. (Std. hrs. for actual output – Actual hrs.)
(Hrs. basis) = Rs.2.56 (1,29,000 / 3.2 hrs. – 43,000)
= Rs.2.56 (40,312.50 hrs. – 43,000 hrs.)
= Rs.2.56 x 2,687.50 hrs. = Rs. 6,880 (A)

OR

Efficiency variance = SRR/ unit (Std. output expected in actual hrs. – Actual output)
(Output basis) = Rs.0.80[(43,000 x 3.20) – (43,000 x 3)]
= Rs.0.80 [1,37,600 units– 1,29,000 units]
= Rs.0.80 [8,600 units] = Rs. 6,880 (A)

Analysis of Variable overhead variance

Variable Cost variance = Rs. 11,200 (A)

Expenditure variance = Rs. 4,320 (A) Efficiency variance = Rs. 6,880 (A)

3. Calculation of Fixed OH cost variances :

a. Fixed Cost variance = (SRR/ unit x Actual output) – Actual OH
= (Rs.0.25 x 1,29,000 units) – Rs.31,500 = Rs. 750 (F)

b. Expenditure variance = Budgeted OH – Actual OH
= Rs. 32,000 – Rs. 31,500 = Rs. 500 (F)

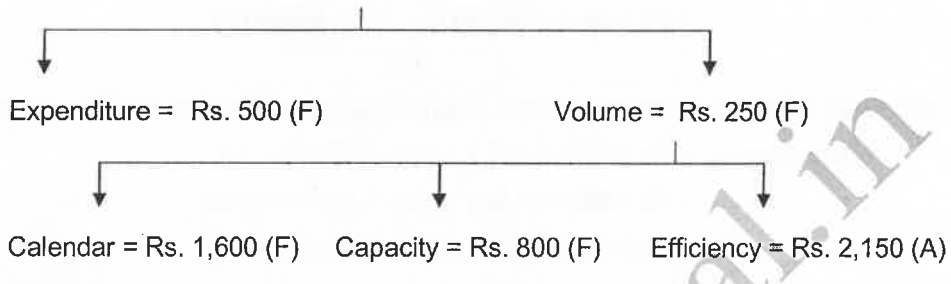
c. Volume variance = SRR/units (Budgeted output – Actual output)
= Rs.0.25 (1,28,000 units – 1,29,000 units) = Rs. 250 (F)

d. Calendar variance = SRR/ day (Budgeted days – Actual working days)
= Rs.1,600 (20 days – 21days) = Rs. 1,600 (F)

e. Capacity variance = SRR/ hrs. (Budgeted hrs. in actual working days – Actual hrs.)
In 20 days : 40,000 hrs, hence in 21 days how many hrs.?
= Rs.0.80 x [(40,000 x 21/20) – 43,000 hrs.)
= 0.80 x (42,000 hrs.– 43,000 hrs.) = Rs. 800 (F)

f. Efficiency variance = SRR/hrs. (Std. hrs. for actual hrs – Actual hrs.)
(hourly basis) = Rs.0.80 ((1,29,000 / 3.2 hrs. – 43,000 hrs.)
= Rs.0.80 (40,312. 50 hrs. – 43,000 hrs.) = Rs. 2,150 (A)

Analysis of Fixed OH cost variance



PROBLEM 18 :

From the following data, analyse fixed overhead variances –

Particulars	Budget	Actual
Output (units)	15,000	21,000
Number of days working	25	26
Capacity (hours per day)	1,000	1,500
Fixed Overheads (Rs.)	9,000	9,300

ANSWER 18 :

Calculation of Fixed overhead cost variances :-

Working note :- Calculation of recovery rates :-

Formula	Recovery Rates
SRR/Unit = Budgeted OH / Budgeted Output	Rs. 9,000 / 15,000 Units = Rs. 0.60 p.u.
SRR/Hour = Budgeted OH / Budgeted Hours	Rs. 9,000 / 25,000 hrs. = Rs. 0.36 per hr.

1) Total cost variance = (Actual output x SRR p.u.) - Actual overheads.
= (21,000 units x Rs. 0.60) - Rs. 9,300
= Rs. 12,600 - Rs. 9,300 = Rs. 3,300 (F)

2) Expenditure variance = (Budgeted overheads - Actual overheads)
= Rs. 9,000 - Rs. 9,300 = Rs. 300 (A)

3) Volume variance = SRR / unit x (Budgeted output - Actual output)
= Rs. 0.60 (15,000 units – 21,000 units)
= Rs. 0.60 x 6,000 units = Rs. 3,600 (F)

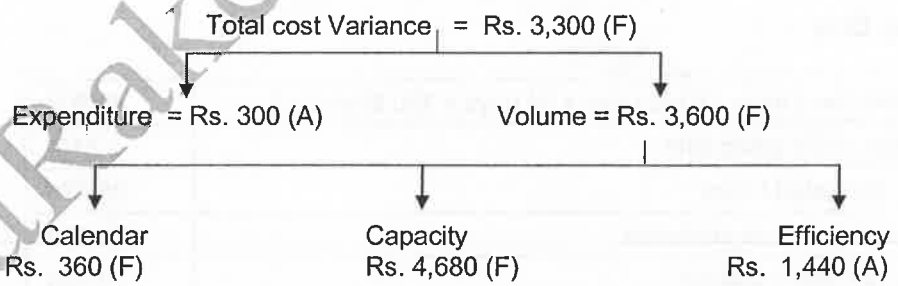
4) Calendar variance = Std. overheads per day x (Budget days - Actual days)
$= \frac{\text{Rs. 9,000}}{\text{25 days}}$ x (25 days - 26 days) = Rs. 360 (F)

5) Capacity variance = SRR / hr x (Budgeted hrs. for actual working days - Actual hrs)
= Rs. 0.36 x [(1,000 hrs./day x 26 days) - (1,500 hrs./day x 26 days)]
= Rs. 0.36 x (26,000 hrs. – 39,000 hrs.) = Rs. 4,680 (F)

6) Efficiency variance = SRR/hour x (Std. hours for actual output – Actual hours)
= 0.36 x [*(25,000 hrs. / 15,000 units x 21,000 units) – (39,000 hrs.)]
= 0.36 x (35,000 – 39,000) = Rs. 1,440 (A)

* Hint : In 25,000 Bud. Hours, we expect 15,000 units then
For 21,000 actual output, how many hours are required?

Analysis of Fixed OH Variance



PROBLEM 19 :

A company is engaged in manufacturing of several products. The following data have been obtained from the record of a machine shop for an average month:

Budgeted Data :	
No. of working days	24
Working hours per day	8
No. of direct workers	150
Efficiency	One standard hour per clock hour
Down time	10%
Overheads - Fixed	₹ 75,400
- Variable	₹ 90,720
The **actual data** for the month of August are as follows:	
Overheads - Fixed	₹ 78,800
- Variable	₹ 70,870
Net operator hours worked	20,500
Standard hours produced	22,550

There was a special holiday in August.

Required :

(i) Calculate all the relevant fixed overhead variances.

(ii) Calculate variable overheads expenditure and efficiency variance.

ANSWER 19 :

1. Key Data : -

Maximum Hours [8 hrs / day x 24 days x 150 Workers]	28,800
Less : 10% down time	(2,880)
∴ Budgeted hours	25,920
Standard hours produced	22,550
Actual hours worked	20,500
Budgeted no of working days	24
Actual no of working days (24 - 1)	23

2. Calculation of fixed overhead cost variances:-

(a) Cost variance = (SRR / Unit x Actual output) – Actual OH
Or = (SRR / hour x Std. hours) – Actual OH
= (*2.91 x 22,550) – 78,800
= 13,179.50 (A)

$$* \text{SRR / hour} = \frac{\text{Bud.OH}}{\text{Bud.Hours}} = \frac{75,400}{25,920} = 2.90 (\text{approx}) \quad \text{say 2.91 after rounding off.}$$

(b) Expenditure variance = Budgeted OH – Actual OH
= 75,400 – 78,800
= 3,400 (A)

(c) Volume variance = SRR / Unit x (Bud. Output – Actual output)
Or = SRR / hour x (Bud. Hours – Std. hours)
= 2.91 x (25,920 – 22,550)
= 9,806.70 (A)

(d) Calendar variance = SRR / Day x (Bud. days – Actual days)

$$= \frac{75,400}{24 \text{ days}} \times (24 - 23)$$

= Rs 3,142 (A)

(e) Capacity variance = SRR/hour x (Bud. Hours for actual working days – Actual hours for actual working days)

$$= 2.91x\left(\left(\frac{25,920\text{hrs}}{24\text{days}} x 23\text{days}\right) - 20,500\right)$$

= 2.91 x (24,840 – 20,500)

= Rs. 12,629.40 (A) underutilization of capacity

(f) Efficiency variance = SRR/hour x (Std. hours – Actual hours)

= 2.91 x (22,550 – 20,500)

= Rs. 5,965.50 (F)

3. Calculation of Variable Overhead Cost Variances :-

(a) Expenditure variance
= (SRR / hour x Actual hours) – Actual OH
= (*3.50 x 20,500) – 70,870
= Rs 880 (F)

$$* \text{SRR / hour} = \frac{\text{Bud.OH}}{\text{Bud.Hours}} \times \frac{90,720}{25,920} = 3.50$$

(b) Efficiency variance
= SRR/hour x (Std. hours – Actual hours)
= 3.50 x (22,550 – 20,500)
= Rs. 7,175 (F)

PROBLEM 20 :

The following information is available from the records of a Company for February :-

	Rs.
Materials purchased : 20,000 pieces	88,000
Materials consumed : 19,000 pieces	
Actual wages paid for 4,950 hours	24,750
Factory Overheads Incurred	44,000
Factory Overheads Budgeted	40,000
Units Produced :	1,800

Standards Rates and Prices are :-

Direct Material Rate Rs. 4 per piece

Standard Input 10 pieces per unit

Direct Labour Rate Rs. 4 per hour

Standard requirement 2.5 hours per unit.

Overhead Rs. 8 per labour hour

Required :-

(a) Show the Standard Cost Card

(b) Compute all material, labour and overhead variance for February.

ANSWER 20 :

(A) Standard Cost card :- (for one unit of output)

Particulars	Calculations	Rs./unit
Material cost	(10 pieces x Rs.4)	40.00
Labour cost	(2.5 hrs. x Rs.4)	10.00
Overheads	(2.5 hrs. x Rs.8)	20.00
Standard cost per unit		70.00

(B) Calculation of Material cost variances :-

1) Total cost variance = Std. cost of actual output - Actual cost.

= (1,800 units x Rs. 40) - [(Rs. 88,000 x 19,000)/20,000]

= Rs. 72,000 - Rs. 83,600 = Rs. 11,600 (A).

2) Material price variance = Actual qty. consumed (Std. price - Actual price)

= 19,000 units (Rs. 4 - Rs. 4.40) = Rs. 7,600 (A).

3) Material Usage variance = Std. price (Std. qty. - actual qty.)
= Rs. 4 [(1,800 units x 10) - 19,000 units]
= Rs. 4 (18,000 units - 19,000 units) = Rs. 4,000 (A).

(C) Labour Cost Variances :-

1) Total cost variance = Std. cost of actual output - Actual cost
= (Rs. 10 x 1,800 units) - Rs. 24,750
= Rs. 18,000 - Rs. 24,750 = Rs. 6,750 (A).

2) Rate variance = Actual hrs. (Std. Rate - Actual Rate)
= 4,950 hrs. (Rs. 4 - Rs. 24,750/4,950 units)
= 4,950 hrs.(Rs. 4 - Rs. 5) = Rs. 4,950 (A).

3) Efficiency variance = Std. Rate (Std. hrs - Actual hrs.)
= Rs. 4 per hour [(1800 units x 2.5 hrs) - 4,950 hrs.]
= Rs. 4 (4,500 hrs. - 4,950 hrs.) = Rs. 1,800 (A).

(D) Assuming factory overheads as fixed overheads the variances are calculated :-

SRR/hr. = Rs. 8 ; SRR/unit = Rs. 20; 1 unit = 2.5 hrs.

SRR/unit = Budgeted overheads / Budgeted output

Rs. 20 = Rs. 40,000 / Budgeted output

Therefore, Budgeted output = Rs. 40,000 / Rs. 20 = 2,000 units

Therefore, Budgeted hrs. = 2,000 units x 2.5 hrs. = 5,000 hrs.

1) Total cost variance = (SRR/unit x Actual output) - Actual overheads
= (Rs. 20 x 1,800 units) - Rs .44,000
= Rs. 36,000 - Rs. 44,000 = Rs. 8,000 (A).

2) Expenditure variance = Budgeted overheads - Actual overheads
= Rs. 40,000 - Rs. 44,000 = Rs. 4,000 (A).

3) Volume variance = SRR per unit (Bud. output - Actual output)
= Rs. 20 (2,000 units - 1,800 units) = Rs. 4,000 (A).

4) Capacity variance = SRR/hr. (Bud. hrs. - Actual hrs.)
= Rs. 8 (5,000 hrs.- 4,950 hrs.)
= Rs. 8 x 50 hrs. = Rs. 400 (A).

5) Efficiency variance = SRR/unit (Std. output - Actual output)
= Rs. 20 [(4,950 hrs./2.5) - 1,800 units]
= Rs. 20 (1,980 units - 1,800 units) = Rs. 3,600 (A).

PROBLEM 21 :

For one unit of product A, the standard data is given below :-

Material - 5 kg. @ Rs. 40 per kg. = Rs. 200

Labour - 40 hrs. @ Re. 1 per hour = Rs. 40

Actual Data -

Actual production 100 units

Cost :	Rs.
Material 490 kg. @ Rs. 42 each	20,580
Labour 3960 hrs. @ Rs. 1.10 per hour	4,356

Calculate all possible variances.

ANSWER 21 :

(a) material cost variance = Rs. 580 (A)

(b) material price variance = Rs. 980 (A)

(c) material usage variance = Rs. 400 (F)

(d) labour cost variance = Rs. 356 (A)

(e) labour rate variance = Rs. 396 (A)

(f) labour efficiency variance = Rs. 40 (F)

PROBLEM 22 :

Utopian Ltd. commenced business on Jan. 1, 2014, and a system of standard costing was installed. The company manufactures one product of a standard type and the standard cost was:

Standard price of material 30 Paise per kg.

Standard quantity of material 8 kg. per unit

Standard direct labour cost Rs. 12 per unit

Fixed Factory overhead were estimated at Rs. 60,000 for the year 2014. Normal operating time for the year was estimated at 2,000 hours per machine and standard time for the production of one unit is determined as 12 machine hours. The company has twenty four machines of a uniform type.

It was found that the actual total operating time for 2014 was exactly 2100 hours per machine and all machines were fully employed for the whole of the time. The actual output for the year was 3,600 units. The actual quantity of material used was 30,000 kg. and the cost Rs. 9,150.

The actual direct wages for 2014 amounted to Rs. 45,360. The actual factory overheads for 2014 were Rs. 61,800.

You are required :

(a) to compute the standard cost per unit and the standard cost of actual output.

(b) to set out the variances.

ANSWER 22 :

	Std. Cost per unit (Rs.)	Std. Cost of 3,600 units (Rs.)	Actual Cost of 3,600 units (Rs.)
Material cost	2.40	8,640	9,150
Labour cost	12.00	43,200	45,360
Fixed overheads	15.00	54,000	61,800

(a) Material cost variance = Rs. 510 (A)
(b) Material price variance = Rs. 150 (A)
(c) Material usage variance = Rs. 360 (A)
(d) Labour cost variance = Rs. 2,160 (A)
(e) Labour rate variance = Rs. 5,040 (F)
(f) Labour efficiency variance = Rs. 7,200 (A)
(g) Fixed OH cost variance = Rs. 7,800 (A)
(h) Fixed OH expenditure variance = Rs. 1,800 (A)
(i) Fixed OH Volume variance = Rs. 6,000 (A)
(j) Fixed OH capacity variance = Rs. 3,000 (F)
(k) Fixed OH efficiency variance = Rs. 9,000 (A)

Questions on Sales Variance

PROBLEM 23 :

Following data is related to sales :

Product	Budget			Actual		
	Qty.	Price p.u.	Value	Qty.	Price p.u.	Value
A	400	60	24,000	500	62	31,000
B	200	50	10,000	100	48	4,800
Totals	600		34,000	600		35,800

Calculate : All types of sales variances.

ANSWER 23 :

Particulars	Rs.
(a) Sales value variance	1,800 (F)
(b) Sales price variance	800 (F)
(c) Sales volume variance	1,000 (F)
(d) Sales mix variance	1,000 (F)
(e) Sales quantity variance	NIL

PROBLEM 24 :

Following data is related to sales. Calculate all sales variances.

Product	Standard			Actual		
	Qty.	Sale price Rs.	Total Rs.	Qty.	Sale price Rs.	Total Rs.
X	500	5	2,500	500	5.00	2,500
Y	400	6	2,400	600	6.25	3,750
Z	300	7	2,100	400	6.75	2,700
Totals	1,200		7,000	1,500		8,950

ANSWER 24 :

Particulars	Rs.
(a) Sales value variance	1,950 (F)
(b) Sales price variance	50 (F)
(c) Sales volume variance	1,900 (F)
(d) Sales mix variance	150 (F)
(e) Sales quantity variance	1,750 (F)

PROBLEM NO. 25 :

Standcost Corporation produces three products : A, B and C. The master budget called for the sale of 10,000 units of A at Rs.12 , 6,000 units of B at Rs.15 and 8,000 units of C at Rs.9. In fact, the firm actually produced and sold 11,000 units of A at Rs.11.50 , 5,000 units of B at Rs.15.10 and 9,000 units of C at Rs. 8.55.

You are required to calculate Sales Variances.

ANSWER 25 :

Particulars	Rs.
(a) Sales value variance	3,050 (A)
(b) Sales price variance	9,050 (A)
(c) Sales volume variance	6,000 (F)
(d) Sales mix variance	5,751 (A)
(e) Sales quantity variance	11,751 (F)

Questions on Profit Variance

PROBLEM NO. 26 :

A company actually sold 8,000 units of A and 10,000 units of B at ₹ 12 and ₹ 16 per unit respectively against a budgeted sale of 6,000 units of A at ₹ 14 per unit and 9,000 units of B at ₹ 13 per unit. The standard costs of A and B are ₹ 8 and ₹ 10 per unit respectively and the corresponding actual costs are ₹ 5.5 and ₹ 14.5 per unit.

Compute the product wise sales margin mix and sales margin price variances, indicating clearly, whether the variance is favorable or adverse.

ANSWER 26 :

Note : Sales Margin Variance is also known as Profit Variance. It means, you are asked to Calculate Profit Mix and Profit Price Variance.

1. **Key Data:-**

Product	Bud. Qty.	Actual Qty.	Std. S.P.	Std. C.P.	Std. Profit	Actual S.P.	Actual C.P.	Actual Profit
A	6,000	8,000	14	8	6	12	5.5	6.5
B	9,000	10,000	13	10	3	16	14.5	1.5

2. **Profit Mix / Sales Margin Mix Variance :** Std mix ratio is 6 : 9

= Std. Profit p.u. x (Std. Mix – Actual Mix)

A =	6 x (7,200 – 8,000)	= 4,800 (F)
B =	3 x (10,800 – 10,000)	= 2,400 (A)
Total	18,000 18,000	= 2,400 (F)

3. **Profit Price / Sales Margin Price Variance**

= Actual Qty. sold x (Std. Profit p.u. – Actual Profit p.u.)

A = 8,000 x (6 – 6.5)	= 4,000 (F)
B = 10,000 x (3 – 1.5)	= 15,000 (A)
Total	11,000 (A)

PROBLEM NO. 27 :

The budget and actual operating data for 2010-11 pertaining to 4 products in a store are given below:

	Budgeted data for 2010-11			Actual operating results in 2010-11		
Product	**Gallons**	**Selling price (₹ per gallon)**	**Variable costs (₹ per gallon)**	**Gallons**	**Selling price (₹ per gallon)**	**Variable costs (₹ per gallon)**
V	2,50,000	1.2	0.5	1,80,000	1.00	0.45
C	3,00,000	1.5	0.6	2,70,000	1.35	0.50
S	2,00,000	1.8	0.7	3,30,000	2.00	0.75
A	50,000	2.5	1.0	1,80,000	3.00	1.20

You are required to compute for the individual products and in total:

(i) the sales margin price variance

(ii) the sales margin mix variance and

(iii) the sales margin volume variance

Indicate whether the variances are favourable (F) or unfavorable (A or U).

ANSWER 27 :

Note : Sales Margin Variance means Profit Variance.

Working Notes :-

1. Calculation of Budgeted Sales Margin (i.e. Std. Sales Margin)

   = Budgeted Selling Price – Budgeted Variable Cost

   V = 1.2 – 0.5 = 0.7

   C = 1.5 – 0.6 = 0.9

   S = 1.8 – 0.7 = 1.1

   A = 2.5 – 1.00 = 1.5

2. Calculation of Actual Sales Margin

   = Actual Selling Price – Actual Variable Cost

   V = 1.00 – 0.45 = 0.55

   C = 1.35 – 0.50 = 0.85

   S = 2.00 – 0.75 = 1.25

   A = 3.00 – 1.20 = 1.80

Main Answers :

(i) Sales Margin Price Variance (i.e. Profit Price Variance)

= Actual Qty. Sold x (Budgeted Margin – Actual Margin)

V	= 1,80,000 x (0.7 – 0.55)	=	27,000 (A)
C	= 2,70,000 x (0.9 – 0.85)	=	13,500 (A)
S	= 3,30,000 x (1.1 – 1.25)	=	49,500 (F)
A	= 1,80,000 x (1.5 – 1.80)	=	54,000 (F)
	Total		63,000(F)

(ii) Sales Margin Mix Variance (i.e. Profit Mix Variance)

= Std. Sales Margin x (Std. Mix – Actual Mix)

V	= 0.7 x (3,00,000 – 1,80,000)	=	84,000 (A)
C	= 0.9 x (3,60,000 – 2,70,000)	=	81,000 (A)
S	= 1.1 x (2,40,000 – 3,30,000)	=	99,000 (F)
A	= 1.5 x (60,000 – 1,80,000)	=	1,80,000 (F)
	9,60,000 9,60,000		1,14,000 (F)

Std. sales mix ratio = 25 : 30 : 20 : 5

(iii) Sales Margin Volume Variance (i.e. Profit Volume Variance)

= Std. Sales Margin x (Budgeted Qty. – Actual Qty.)

V	= 0.7 x (2,50,000 – 1,80,000)	=	49,000 (A)
C	= 0.9 x (3,00,000 – 2,70,000)	=	27,000 (A)
S	= 1.1 x (2,00,000 – 3,30,000)	=	1,43,000 (F)
A	= 1.5 x (50,000 – 1,80,000)	=	1,95,000(F)
			2,62,000 (F)

Question on Market Size & Market Share Variance

PROBLEM NO. 28

From the following information, calculate and analyze the profit variances for Bajaj Auto Ltd.

Particulars	Budget	Actual
Total no. of two wheelers sold in India	10,00,000	8,00,000
No. of two wheelers sold by Bajaj Auto	2,50,000	2,40,000
Average profit per vehicle	1,200	1,000

You are required to calculate –

(a) Total Profit Variance

(b) Profit Price Variance

(c) Profit Volume Variance

(d) Market Size Variance and

(e) Market Share Variance

Answers 28 :

(a) Total Profit Variance = ₹ 600 lakhs (A)

(b) Profit Price Variance = ₹ 480 lakhs (A)

(c) Profit Volume Variance = ₹ 120 lakhs (A)

(d) Market Size Variance = ₹ 600 lakh (A)

(e) Market Share Variance = ₹ 480 lakhs (F)

Questions & Solutions on Reconciliation of Profit - Absorption Costing

PROBLEM 29 :

From the following details reconcile the budgeted sales with actual sales, and budgeted profit with actual profit in terms of variances –

Product	BUDGET			ACTUAL		
	Quantity Units	Selling Price (Rs.)	Cost (Rs.)	Quantity Units	Selling Price (Rs.)	Cost Rs.
A	8,000	12	7	9,000	11	7.50
B	12,000	8	6	6,000	10	5.50

ANSWER 29 :

Budgeted data :

Product	Qty. units	S.P. (Rs)	Cost (Rs)	Bud. profit p.u.(Rs.)	Budgeted Sales (Rs.)	Budgeted Profit (Rs.)
A	8,000	12	7	5	96,000	40,000
B	12,000	8	6	2	96,000	24,000
Total					1,92,000	64,000

Actual data :

Product	Qty. units	S.P. (Rs)	Cost (Rs)	Actual profit p.u. (Rs.)	Actual Sales (Rs.)	Actual Profit (Rs.)
A	9,000	11	7.50	3.50	99,000	31,500
B	6,000	10	5.50	4.50	60,000	27,000
Total					1,59,000	58,500

Calculation of Sales Variances :

1] Total Sales Variance = Budged Sales - Actual Sales

A = Rs. 96,000 - Rs. 99,000 = Rs. 3000 (F)

B = Rs. 96,000 - Rs. 60,000 = Rs. 36000 (A)

Total Rs. 33000 (A)

2] Selling price variance = Actual qty. sold x (Std. S.P. - Actual S.P.)

A = 9,000 units x (Rs. 12 - Rs. 11) = Rs. 9000 (A)

B = 6,000 units x (Rs. 8 - Rs. 10) = Rs. 12000 (F)

Total Rs. 3000 (F)

3] Sales volume variance = Std. S.P. x (Bud. qty. - Actual qty.)

A = Rs. 12 x (8000 units - 9000 units) = Rs. 12,000 (F)

B = Rs. 8 x (12000 units - 6000 units) = Rs. 48,000 (A)

Total Rs. 36,000 (A)

4] Sales Mix variance = Std. S.P. x (Std. mix - Actual mix)

	Std. S.P. Rs.	Calculation Units	Std. Mix units	Actual mix Rs.	Variance
A	12	15,000 x 2/5	6,000	9,000	36,000 (F)
B	8	15,000 x 3/5	9,000	6,000	24,000 (A)
		Total	15,000	15,000	12,000 (F)

5] Sales Quantity Variance = Std. Selling price x (Bud. Qty. - Std. Mix)

A = Rs. 12 (8,000 units - 6,000 units) = Rs. 24,000 (A)

B = Rs. 8(12,000 units - 9,000 units) = Rs. 24,000 (A)

Total Rs. 48,000 (A)

Statement Reconciling Budgeted Sales with Actual Sales

Particulars	Rs.	Rs.
Budgeted sales		1,92,000
(+) Favorable variances :-		
Sales price variance	3,000	
Sales mix variance	12,000	15,000
(-) Adverse variances :-		
Sales qty. Variance		48,000
Therefore, Actual sales		1,59,000

Calculation of Profit Variances :-

1) Total profit variance = Budgeted profit - Actual profit

A = Rs. 40,000 - Rs. 31,500 = Rs. 8,500 (A)

B = Rs. 24,000 - Rs. 27,000 = Rs. 3,000 (F)

Total Rs. 5,500 (A)

2) Sales price variance = Actual qty. x (Std. S.P. - Actual S.P.)

A = 9,000 units (Rs. 12 - Rs. 11) = Rs. 9,000 (A)

B = 6,000 units (Rs. 8 - Rs. 10) = Rs. 12,000 (F)

Total Rs. 3,000 (F)

3) **Profit volume variance** = Std. profit p.u. x (Bud. Qty. - Actual Qty.)

A	= Rs. 5 (8,000 units - 9,000 units) =	Rs. 5,000 (F)
B	= Rs. 2(12,000 units - 6,000 units) =	Rs. 12,000 (A)
Total		Rs. 7,000 (A)

4) Cost price variance = Actual qty. x (Std. cost - Actual cost)

A	= 9,000 units (Rs. 7 - Rs. 7.50) =	Rs. 4,500 (A)
B	= 6,000 units (Rs. 6 - Rs. 5.50) =	Rs. 3,000 (F)
Total		Rs. 1,500 (A)

5) Profit Mix Variance = Std. profit p.u. x (Std. mix - Actual mix)

	Std. profit p.u. (Rs.)	Calculation	Std. mix Units	Actual mix Units	Variance (Rs.)
A	5	15,000 x 2/5	6,000	9,000	15,000 (F)
B	2	15,000 x 3/5	9,000	6,000	6,000 (A)
			15,000	15,000	9,000 (F)

6) Profit Quantity Variance = Std. profit (Budg. qty. - Std. mix)

A	= Rs. 5 (8,000 units - 6,000 units) =	Rs. 10,000 (A)
B	= Rs. 2 (12,000 units - 9,000 units) =	Rs. 6,000 (A)
Total		Rs. 16,000 (A)

Statement Reconciling Budgeted profit with Actual profit

Particulars	Rs.	Rs.
Budgeted profit		64,000
(+) Favorable Variances :-		
Sales price variance	3,000	
Mix variance	9,000	12,000
Sub total		76,000
(-) Adverse Variances :-		
Cost Price	1,500	
Profit Qty.	16,000	(17,500)
Actual Profit		58,500

PROBLEM No. 30

The following data relates to Sunil Hi -Tech manufacturers Ltd. for the month of March. You are requested to prepare a reconciliation statement, reconciling the Budgeted Profit with Actual Profits, with the help of Variances. The Standard cost per unit is –

Direct Material	1.3 kgs. @ Rs. 4.00 per kg.
Direct Labour	2 hours @ Rs. 2.30 per hour
Factory overheads	2 hours @ Rs. 2.00 per hour
Selling price	Rs. 15 per unit.

Normal Capacity is 2,00,000 direct labour hours per month. The factory overhead rate is arrived at on the basis of fixed overheads of Rs. 1,00,000 per month and Variable overheads of Rs. 1.50 per direct labour hour.

In the month of March, 90,000 units were produced & Sold.

The actual cost data for the month of March reveals that -

- Direct material consumed is 1,40,000 kgs. @ Rs. 4.20 per kg.
- Direct labour hours worked were 1,70,000 hours @ Rs. 2.50 per hour.
- Factory overheads for the month amounted to Rs. 4,00,000 out of which Rs. 1,10,000 were fixed.
- Actual sales amounted to Rs. 13,95,000.

ANSWER 30 : Sunil Hi -Tech manufacturers Ltd.

1. Standard Cost card : (for one unit of output)

Particulars	Calculations	Rs./unit
Material cost	(1.3 kgs. x Rs. 4/kg.)	5.20
Labour cost	(2 hrs. x Rs. 2.3/hr.)	4.60
Variable Overheads	(2 hrs. x Rs. 1.5/hr.)	3.00
Fixed Overheads	(2 hrs. x Rs. 0.5/hr.)	1.00
Standard cost per unit		13.80
Standard Selling Price p.u.	Given	15.00
Standard Profit p.u.		1.20

2. Statement of Actual Result (for 90,000 units) :

Particulars	Calculations	Rs.
Material cost	(1,40,000 kgs. x Rs. 4.2/kg.)	5,88,000
Labour cost	(1,70,000 hrs. x Rs. 2.5/hr.)	4,25,000
Variable Overheads	(4,00,000 – 1,10,000)	2,90,000
Fixed Overheads	Given	1,10,000
Actual total cost		14,13,000
Actual Sales	Given	13,95,000
Actual Total Profit / (Loss)		(18,000)

3. Reconciliation **Statement of Profit :**

Particulars	**Rs.**	**Rs.**
Budgeted Profit (1,00,000 units x 1.20)		1,20,000
Less : Profit Volume Variance		(12,000)
Therefore Standard Profit		1,08,000
Add : Favourable Variances :		
Sales price variance	45,000	
Labour Efficiency variance	23,000	
Variable OH Efficiency Variance	15,000	
Fixed OH Efficiency Variance	5,000	88,000
Less : Adverse Variances :		
Material Price Variance	28,000	
Material Usage variance	92,000	
Labour Rate Variance	34,000	
Variable OH Expenditure Variance	35,000	
Fixed OH Expenditure Variance	10,000	
Fixed OH Capacity Variance	15,000	2,14,000
Actual Profit / (Loss)		(18,000)

PROBLEM 31 :

A single product company operates a system of standard costing. The following data relate to actual output, sales, costs and variances for a month:

Actual output	18,000 units
Actual sales and costs incurred :	**Rs.**
Sales	12,15,000
Direct materials purchased and used 63,000 kg.	2,04,750
Direct wages	2,12,040
Variable overheads	2,77,020
Fixed overheads	3,25,000
Total costs	10,18,810
Profit	1,96,190

Budgeted output for the month is 20,000 units. Variances are:

Direct materials	Price variance	15,750 A
	Usage variance	27,000 A
Direct labour	Rate variance	6,840 A
	Efficiency Var.	10,800 F
Variable overheads	Efficiency Var.	14,400 F
	Expenses Var.	3,420 A
Fixed overheads	Expenses Var.	25,000 A
Sales price variance		45,000 F

Required :

(i) Present the original budget along with cost sheet showing the standard cost and profit per unit.

(ii) Calculate the sales gross margin volume and fixed overheads volume variances.

(iii) Prepare an operating statement reconciling the budgeted Profit with actual profit.

ANSWER 31 :

1. Statement showing original budget and standard cost sheet :

Particulars	Actual for 18,000 units	Variances (Rs.)			Std. for 18,000 units	Std. for 1 unit	Budget for 20,000 units
		Price / Rate / Exp.	Usage / Efficiency / Volume	Total			
D. Material	2,04,750	15,750 (A)	27,000 (A)	42,750 (A)	1,62,000	9.00	1,80,000
Direct labour	2,12,040	6,840 (A)	10,800 (F)	3,960 (F)	2,16,000	12.00	2,40,000
Variable OH	2,77,020	3,420 (A)	14,400 (F)	10,980 (F)	2,88,000	16.00	3,20,000
Fixed OH	3,25,000	25,000 (A)	30,000 (A)	55,000 (A)	2,70,000	15.00	3,00,000
Total cost	10,18,810	--	--	82,810 (A)	9,36,000	52.00	10,40,000
Sales	12,15,000	45,000 (F)	--	45,000 (F)	11,70,000	65.00	13,00,000
Profit	1,96,190	--	--	37,810 (A)	2,34,000	13.00	2,60,000

2. Sale gross margin volume variance

= Std. contribution / unit x (Budgeted output – Actual output)

= Rs.28 x (Rs.20,000 – Rs.18,000) = Rs. 56,000 (A)

3. Fixed OH volume variance = SRR / unit x (Budgeted output – Actual output)

= Rs.15 x (20,000 units – 18,000 units) = Rs.30,000 (A)

4. Reconciliation Statement of Profit : [Marginal Costing or Contribution Approach]

Particulars	**Rs.**	**Rs.**
Budgeted Profit		**2,60,000**
Add : Favourable Variance		
Sales price variance	45,000	
Labour Efficiency variance	10,800	
Variable OH Efficiency Variance	14,400	70,200
Less : Adverse Variance		
Gross margin volume variance	56,000	
Material Price Variance	15,750	
Material Usage variance	27,000	
Labour Rate Variance	6,840	
Variable OH Expenditure Variance	3,420	
Fixed OH Expenditure Variance	25,000	(1,34,010)
Actual Profit		**1,96,190**

Question 32 : (ICAI website - October, 2019)

JPY Limited produces a single product. It has recently automated part of its manufacturing plant and adopted Total Quality Management (TQM) and Just-in-Time manufacturing system. No inventories are held for material as well as for finished product. The company currently uses standard absorption costing system. Following are related to fourth quarter of 2018-19 :

Particulars	Budget	Actual
Production and Sales	1,00,000 units	1,10,000 units
Direct Materials	2,00,000 kg. @ ₹ 30/kg.	2,50,000 kg. @ ₹ 31.20/kg.
Direct Labour Hours	25,000 hrs @ ₹ 300/hr.	23,000 hrs. @ ₹ 300/hr.
Fixed Production Overhead	₹ 3,20,000	₹ 3,60,000

Production overheads are absorbed on the basis of direct labour hours.

The CEO intends to introduce activity based costing system along with TQM and JIT for better cost management. A committee has been formed for this purpose. The committee has further analysed and classified production overhead of fourth quarter as follows :

Particulars	Budget	Actual
Costs :		
Material Handling	₹ 96,000	₹ 1,24,000
Set Up	₹ 2,24,000	₹ 2,36,000
Activity :		
Material Handling (orders executed)	8,000	8,500
Set Up (production runs)	2,000	2,100

Revision of standards relating to fourth quarter were made as below :

Particulars	Original Standard	Revised Standard
Material content per unit	2 kg.	2.25 kg.
Cost of Material	₹ 30 per kg.	₹ 31 per kg.
Direct Labour Time per unit	15 minutes	12 minutes

Required :

(i) CALCULATE Planning and Operational Variances relating to material price, material usage, labour efficiency, and labour rate.

(ii) CALCULATE overhead expenditure and efficiency variance using Activity Based Costing principles.

Solution 32 :

Hint : Use Circular Tally Technique to design formulae.

(i) Workings :

Cost Factor	Original Standards (ex-ante)	Revised Standards (ex-post)	Actual for (1,10,000 units)
Material - Usage (kg.)	1,10,000 units x 2 = 2,20,000 kg.	1,10,000 units x 2.25 = 2,47,500 kg.	2,50,000 kg.
Material - Price (₹)	₹ 30/kg.	₹ 31 per kg.	₹ 31.20/kg.
Labour - Hours	1,10,000 x 15/60 = 27,500 hours	1,10,000 x 12/60 = 22,000 hours	23,000 hours
Labour - Rate/Hr. (₹)	₹ 300	No change	₹ 300

Material Cost Variances :

Traditional Variances :

Total Cost Variance	=	(SQ x SP) - (AQ x AP)
	=	(2,20,000 x 30) - (2,50,000 x 31.20)
	=	66,00,000 - 78,00,000
	=	₹ 12,00,000 (A)
Price Variance	=	AQ x (SP - AP)
	=	2,50,000 kg. x (₹ 30.00 – ₹ 31.20)
	=	₹ 3,00,000 (A)
Usage Variance	=	SP x (SQ - AQ)
	=	₹ 30 x (2,20,000 kg. – 2,50,000 kg.)
	=	₹ 9,00,000 (A)

Planning Variances :

Usage Variance	=	SP x (SQ - Revised SQ)
	=	₹ 30 x (2,20,000 kg. – 2,47,500 kg.)
	=	₹ 8,25,000 (A)
Price Variance	=	Revised SQ x (SP - Revised SP)
	=	2,47,500 kg. x (₹ 30 – ₹ 31)
	=	₹ 2,47,500 (A)
Total Planning Variance	=	₹ 8,25,000 (A) + ₹ 2,47,500 (A)
	=	₹ 10,72,500 (A)

Operational Variances :

Usage Variance	=	Revised SP x (Revised SQ - AQ)
	=	₹ 31 x (2,47,500 kg. – 2,50,000 kg.)
	=	₹ 77,500 (A)
Price Variance	=	AQ x (Revised SP - AP)
	=	2,50,000 kg. x (₹ 31 – ₹ 31.20)
	=	₹ 50,000 (A)
Total Operational Variance	=	₹ 77,500 (A) + ₹ 50,000 (A)
	=	₹ 1,27,500 (A)

Cross Tally : Total Cost Variance = Total Planning Var. + Total Operational Var.
= ₹ 10,72,500 (A) + ₹ 1,27,500 (A)
= ₹ 12,00,000 (A)

Labour Cost Variances :

Traditional Variances :

Total Cost Variance	=	(SH x SR) - (AH x AR)
	=	(27,500 hrs. x ₹ 300) - (23,000 hrs. x ₹ 300)
	=	₹ 13,50,000 (F)
Rate Variance	=	AH x (SR - AR)
	=	23,000 hrs. x (₹ 300 – ₹ 300) = NIL
Efficiency Variance	=	SR x (SH - AH)
	=	₹ 300 x (27,500 hrs. – 23,000 hrs.)
	=	₹ 13,50,000 (F)

Planning Variances :

Efficiency Variance	=	SR x (SH - Revised SH)
	=	₹ 300 x (27,500 hrs. – 22,000 hrs.)
	=	₹ 16,50,000 (F)
Rate Variance	=	NIL. Not Applicable. No Revision in Rate
Total Planning Variance	=	₹ 16,50,000 (F) + NIL
	=	₹ 16,50,000 (F)

Operational Variances :

Efficiency Variance	=	SR x (Revised SH - AH)
	=	₹ 300 x (22,000 hrs. – 23,000 hrs.)
	=	₹ 3,00,000 (A)
Rate Variance	=	AH x (SR - AR)
	=	23,000 hrs. x (₹ 300 – ₹ 300) = NIL
Total Operational Variance	=	₹ 3,00,000 (A) + NIL
	=	₹ 3,00,000 (A)

(ii) Overhead Variances using Activity Based Principles :

Material Handling Activity

Expenditure Variance	=	(Actual Activities x Std. Activity Cost Driver Rate) - Actual Overhead Cost
	=	(8,500 orders x ₹ 12) - ₹ 1,24,000
	=	₹ 1,02,000 - ₹ 1,24,000 = ₹ 22,000 (A)
Std. Activity Cost Driver Rate	=	Budgeted Cost / Budgeted Activities
	=	₹ 96,000 / 8,000 orders = ₹ 12 per order
Efficiency Variance	=	Std. Rate x (Std. No. of Activities required for actual output - Actual No. of Activities)
	=	₹ 12 x [8,800 - 8,500 orders]
	=	₹ 3,600 (F)

Std. No. of Activities required for actual output = $\left[\frac{\text{8,000 orders}}{\text{1,00,000 units}}\right]$ x 1,10,000 units

Set Up Activity :

Expenditure Variance	=	(Actual Activities x Std. Activity Cost Driver Rate) - Actual Overhead Cost
	=	(2,100 set up x ₹ 112) - ₹ 2,36,000
	=	₹ 2,35,200 - ₹ 2,36,000 = ₹ 800 (A)
Std. Activity Cost Driver Rate	=	Budgeted Cost / Budgeted Activities
	=	₹ 2,24,000 / 2,000 set up = ₹ 112 per set up
Efficiency Variance	=	Std. Rate x (Std. No. of Activities required for actual output - Actual No. of Activities)
	=	₹ 112 x [2,200 - 2,100 set up]
	=	₹ 11,200 (F)

Std. No. of Activities required for actual output =

$$\left[\frac{\text{2,000 runs}}{\text{1,00,000 units}}\right] \times \text{1,10,000 units}$$

Interpretation, Investigation & Reporting of Variances

Question 33 : [ICAI website]

Aquatic Feed (AF) is the leading manufacturer of fish and other sea animal feed. AF has made its credit pioneering effort and service for over one decade in development of culture, processing and exports with its state-of-art fish feed and processing plants. Hallmark of AF is constant upgradation of aquaculture technology bringing latest developments in the field to the doorstep of the Indian aquaculture farmer. It stands as a leading provider of high quality feed, best technical support to the farmer and caters to the quality standards of global customers.

One of its fish feed product is "B" which is produced by mixing and heating three ingredients : B_1, B_2 and B_3. It uses a standard costing system to monitor its costs. The standard material cost for 100 kg. of "B" is as follows:

Ingredients	Standard Qty. (kg.)	Cost per kg. (₹)	Cost per 100 kg. of "B" (₹)
B_1	42	3	126
B_2	62	6	372
B_3	21	2	42
Totals	125		540

Notes :

- B_1, B_2 and B_3 are agricultural products. Their quality and price changes significantly every year. Standard prices are determined at the average market price over the last three years. AF has a purchasing manager responsible for purchasing and pricing.
- The standard mix is decided by the Managing Partner having 15 years' of rich experience in aquaculture field. The last time this was done at time of launching the "B" that was six years back. The standard mix has not been changed since.
- Mixing and heating process are subject to some evaporation loss.

In the current month 4,605 Kg. of "B" was produced, using the following ingredients :

Ingredients	Actual Qty. (Kg.)	. Cost per Kg. (₹)	Total Cost of "B" (₹)
B_1	2,202	2.8	6,165.60
B_2	2,502	7	17,514
B_3	921	2	1,842
Totals	5,625		25,521.60

At every month end, the production manager receives a statement from the Managing Partner. This statement contains material price and usage variances for the month and no other feedback on the efficiency of the processes is provided.

Required :

EVALUATE the performance measurement system in AF.

Solution 33 :

Calculation of Variances :

Material Price Variance = AQ x (Std. Price - Actual Price)

Input	Actual Qty. (Kg.)	Std. Cost (₹)	Actual Cost (₹)	Price Variance (₹)
B_1	2,202	3	2.8	440.40 (F)
B_2	2,502	6	7	2,502.00 (A)
B_3	921	2	2	-
Totals	5,625			2,061.60 (A)

Material Usage Variance = SP x (SQ for actual output - AQ consumed)

Input	Std. Price (₹)	Calculation of Std. Qty.	Std. Qty. (Kg.)	Actual Qty. (Kg.)	Usage Variance (₹)
B_1	3	42/100 x 4605	1,934.10	2,202	803.70 (A)
B_2	6	62/100 x 4605	2,855.10	2,502	2,118.60 (F)
B_3	2	21/100 x 4605	967.05	921	92.10 (F)
Totals			5,756.25	5,625	1,407.00 (F)

Material Mix Variance = SP x (Std. Mix - Actual Mix)

Standard Mixing Proportion is = 42 : 62 : 21

Input	Std. Price (₹)	Calculation of Std. Mix	Std. Mix (Kg.)	Actual Mix (Kg.)	Mix Variance (₹)
B_1	3	5,625 x 42/125	1,890	2,202	936 (A)
B_2	6	5,625 x 62/125	2,790	2,502	1,728 (F)
B_3	2	5,625 x 21/125	945	921	48 (F)
Totals			5,625	5,625	840 (F)

Sub-Usage / Yield Variance = SP x (SQ - Std. Mix)

Input	Std. Price (₹)	Std. Qty. (Kg.)	Std. Mix (Kg.)	Variance (₹)
B_1	3	1,934.10	1,890	132.30 (F)
B_2	6	2,855.10	2,790	390.60 (F)
B_3	2	967.05	945	44.10 (F)
Totals		5,756.25	5,625	567.00 (F)

The statement reported, ₹ 2,061.60 adverse material price variance. The responsibility for controlling the materials price variance is usually with the purchasing manager. Undoubtedly, in current scenario, the price of materials is largely beyond his or her control; however, the price variance can be influenced by such factors as quality, quantity discounts, distance of supplier's location, and so on. These factors are often under the control of the purchasing manager. The production manager is responsible for usage variance and cannot be held responsible for the material price variance.

Since total usage variance reported is ₹ 1,407 favourable, production manager could assume good performance. However, if usage variance is considered in more detail, through the mix and sub-usage calculations, it can be observed that variance was driven by a change in the mix and by using a mix of ingredients which was different from standard. It has resulted in a saving of ₹ 840. Similarly, it has led to a favourable sub-usage variance of ₹ 567. It is worthwhile to note that change in material mix could impact the product quality and sales as well. However, no information has been given about this.

Prices and quality of three agriculture ingredients are changing significantly every year. Using ex ante prices and usage standards can provide an outdated view of variances. Failing to separate

variances caused by uncontrollable factors and planning errors from variances caused by controllable factors can be demoralizing for the managers.

In addition, managers are not involved in setting the standard mix and the same has not been changed for six years despite continuous changes in the quality and prices of the ingredients. This can also mislead the managers i.e. to carryout control activities which are based on the outdated standards.

Furthermore, a true image is missing in relation to managers' performance as statement does not include any feedback or comments on the variances. Even no follow up is being taken on the same.

Overall, it appears that AF is not having comprehensive performance measurement system and this could adversely impact the firm in long run.

Reconciliation of Profit for Performance Evaluation

Question 34 : [ICAI Module]

Well known Footwear (WF) is a shop that focuses on shoes for various sports and activities like jogging, cricket, tennis, and hockey. Budgeted profit for the WF is calculated considering an average selling price of ₹ 500 per pair of shoes and an average cost of ₹ 350 per pair of shoes. The supervisor of the WF has discretion in staffing and in setting prices. Usually, the WF is staffed for total 650 hrs. per month at a budgeted rate of ₹ 125 per hr. In addition to this base wages, sales staff gets a commission equal to 5.5% of sales revenue. Moreover, staffing levels (i.e. working hours) are not expected to change in response to "little" changes in shoe sales. For September 2020, the WF had budgeted sales of 2,250 pairs of shoes and 650 staffing hrs.

Actual results for September, 2020 were as follows :

Pairs of shoes sold	2,500
Revenue	₹ 12,00,000
Less : Cost of shoes sold	₹ 8,25,000
Less : Staff - Basic wages @ ₹ 125 per hour	₹ 78,125
Less : Staff - Commission payment	₹ 66,000
∴ Profit	₹ 2,30,875

Note - "little" changes in shoe sales is specified as ± 12%.

Required :

(i) PREPARE a reconciliation statement of budgeted profit to actual profit.

(ii) COMMENT on supervisor's performance.

Solution 34 :

Working Notes :

1. Key Data, Assumptions & Information :

- Though it is not mentioned in the question about which approach to follow i.e. Absorption costing or Marginal costing, ICAI has used Marginal costing approach to solve this question.
- Cost of shoes and commission payable to staff is treated as variable cost.
- Base wages of staff is treated as fixed cost, because this cost will remain constant up to ± 12% change in sales revenue.
- Budgeted sales quantity was 2,250 pairs and actual sales quantity is 2,500 pairs i.e. 250 extra pairs are sold. This is 11.11% rise in sales volume (250 / 2,250 x 100). This change is within 12% and hence, there is no change in fixed labour cost.
- We need to find out some quantitative data, so that calculation of variances becomes easy. This data is shown below. Use balancing figure technique to calculate it.

2. Budgeted & Actual Data :

Particulars	Budgeted Data			Actual Data		
	Qty.	Rate	Amount ₹	Qty.	Rate	Amount ₹
(a) Sales Revenue	2,250	500	11,25,000	2,500	480	12,00,000
(b) Cost of shoes	2,250	350	7,87,500	2,500	330	8,25,000
(c) Commission	2,250	27.50	61,875	2,500	26.40	66,000
(d) Contribution [a - b - c]	2,250	122.50	2,75,625	2,500	123.60	3,09,000
(e) Basic wages	650 hrs.	125/hr.	81,250	625 hrs.	125/hr.	78,125
(f) Profit [d - e]			1,94,375			2,30,875

3. Calculation of Variances :

(a) Total Profit Variance = Budgeted Profit - Actual Profit
= ₹ 1,94,375 – ₹ 2,30,875 = ₹ 36,500 (F)

(b) Sales Price Variance = Actual Qty. sold x (Std. S.P. – Actual S.P.)
= 2,500 x (500 – 480) = ₹ 50,000 (A)

(c) Contribution Volume Variance = Std. Contribution per unit x (Bud. Qty. – Actual Qty.)
= 122.50 x (2,250 – 2,500) = ₹ 30,625 (F)

(d) Shoe Cost Variance (variable) = Standard cost of actual output - Actual cost
= (₹ 350 x 2,500 units) – 8,25,000 = ₹ 50,000 (F)

(e) Commission Cost Variance (variable) = Standard cost of actual output - Actual cost
= (₹ 27.50 x 2,500 units) – ₹ 66,000 = ₹ 2,750 (F)

(f) Labour Cost Variance (fixed) = Budgeted cost – Actual cost
= ₹ 81,250 – ₹ 78,125 = ₹ 3,125 (F)

Main Answer :

(i) **Reconciliation Statement of Profit :**

Particulars	₹
Budgeted profit - WN 1	1,94,375
Sales Price Variance (A) - WN 3(b)	(50,000)
Contribution Volume Variance (F) - WN 3(c)	30,625
Shoe Cost Variance (F) - WN 3(d)	50,000
Commission Cost Variance (F) - WN 3(e)	2,750
Labour Cost Variance (F) - WN 3(f)	3,125
∴ Actual Profit	2,30,875

Student Note : My way of calculation and presentation of answer is different from ICAI. However, the final answer is same. I have given above a detailed working with formulae. Comparing my answer with ICAI may lead to confusion, hence you may avoid it.

(ii) Comment :

The performance seems to be good. It shows that the supervisor of the WF has passed on the benefit of decrease in shoe cost to customers. It is evident from Shoe cost variance and Sales price variance, i.e. shoe cost decreased by ₹20 per pair, from a standard cost of ₹350 per pair to an actual cost ₹330 per pair. On the other hand, the selling price decreased by ₹20 per pair, from a standard price of ₹500 per pair to an actual price of ₹480 per pair. In turn, the reduction in the selling price appeared to produce a favourable sales volume variance and a reasonable increase in profit also.

Due to reduction in the selling price, staff commissions per unit is lower than budgeted, because the commission is based on sales price. It has led to favourable commission cost variance of ₹2,750.

Lastly, staffing was 25 hours less than budget, leading to a savings of 25 hours x ₹125 per hour = ₹3,125 favourable labour cost variance. It means, the supervisor has attained an increase in sales with lesser staff hours.

Overall, it appears that the manager has done a great job of making revenue and controlling costs, which has lead to increase in profits.

* * * * *

13 Case Study & Case Scenario

Essentials for Case Study : [As per ICAI Module]

- Case study is not about the quantity, but the quality.
- Prepare a plan for each issue.
- Decide what model to use and prioritize the issues.
- Identify the impact and alternative actions that could be taken, as well as the relevant concepts and calculations required.
- Answer should have a logical flow.
- Offer a detailed analysis of the issues and conclude with sound, well justified recommendations.
- Not to spend too much time on calculations.
- Do not place too much attention and time on the presentation.
- Quality of discussion on each issue which is most important, not the ranking order.
- Discuss each of the issues in depth, explaining their impact.
- Do not leave any of the issue undecided.
- Recommendations should include 'what to do', 'why to do it' and 'how to do it'.
- Identify ethical issues and then briefly justify.
- Recommendations should appear at the end of the report.
- Practice makes you perfect.

Rakesh Agrawal Sir's view on Case Study :

- Majority students don't love to read and write theory, including me. Hence, from exam point of view, write the answer of case study at the end.
- Please give sufficient time to carefully read and interpret the case study. You will notice that majority of the answers are lying in the question itself.
- Start answering the questions, in the sequence in which they are asked. When you are answering a sub-question of main question, concentrate only on that relevant part.
- Don't expect full marks on case study, because the marks are dependent on the subjective judgement of the examiner. At the same time, don't leave it altogether. The plus point is that you will get some marks for doing logical copy-paste work.

Question 1 : [RTP - Nov. 18]

Control Through Standard Costing System

'HAL' is a manufacturer, retailer, and installer of Cassette Type Split AC for industrial buyers. It started business in 2001 and its market segment has been low to medium level groups. Until recently, its business model has been based on selling high volumes of a standard AC, brand name 'Summer', with a very limited degree of customer choice, at low profit margins.

'HAL''s current control system is focused exclusively on the efficiency of its manufacturing process and it reports monthly on the following variances: material price, material usage and manufacturing labour efficiency. 'HAL' uses standard costing for its manufacturing operations. In 2018, 'HAL' employs 20 teams, each of which is required to install one of its 'Summer' AC per day for 350 days a year. The average revenue per 'Summer' AC installed is ₹ 36,000. 'HAL' would like to maintain this side of its business at the current level. The 'Summer' installation teams are paid a basic wage which is supplemented by a bonus for every AC they install over the yearly target of 350. The teams make their own arrangements for each installation and some teams work seven days a week, and up to 12 hours a day, to increase their earnings. 'HAL' usually receives one minor complaint each time a 'Summer' AC is installed and a major complaint for 10% of the 'Summer' AC installations.

In 2016, 'HAL' had launched a new AC, brand name 'Summer-Cool'. This AC is aimed at high level corporates and it offers a very large degree of choice for the customer and the use of the highest standards of materials, appliances, and installation. 'HAL' would like to grow this side of its business. A 'Summer-Cool' AC retails for a minimum of ₹ 1,00,000 to a maximum of ₹ 5,00,000. The retail price includes installation.

In 2017 the average revenue for each 'Summer-Cool' AC installed was ₹ 3,00,000. Currently, 'HAL' has 7 teams of 'Summer-Cool' AC installers and they can install up to 240 AC a year per team. These teams are paid salaries without a bonus element. 'HAL' has never received a complaint about a 'Summer-Cool' AC installation. 'HAL''s business is generated from repeat orders, recommendations, and local press advertising. It employs three sales executives who earn an annual salary of ₹ 3,00,000 each. It offers a six-month money back guarantee and this has to be fulfilled for 1% of its installations. 'HAL' has always been in profits but was shocked to see that in its results in 2017 it only earned 0.2% net profit on its turnover.

Required :

(i) EVALUATE the appropriateness of 'HAL''s current control system. [8 Marks]

(ii) RECOMMEND four Critical Success Factors (CSFs) which could assist 'HAL' in achieving future success. [8 Marks]

(iii) ADVISE 'HAL' about the changes it could implement in its standard costing and reporting system to achieve improved control. [4 Marks]

Answer 1 :

(i) **HAL's current control system** is 'focused exclusively' on the manufacturing process and its efficiency even though HAL is also a retailer and installer of industrial ACs. It is suitable for HAL's control system to monitor manufacturing efficiency with the help of the three variances: material usage, material price and manufacturing labour efficiency. No reasons have been given for focusing on these three variances and there may be other variances which can provide useful control information that are not currently computed for example, labour rate and overhead cost.

Although HAL uses standard costing, it is unclear whether it calculates product costs. A lack of product costs computation may be the reason that it was shocked about its 2017 profit margin. Standard costing could be in criticism for misdirecting management's attention. Thus, in the case of a 'Summer-Cool' AC where the highest standards of materials are used, it is pertinent that the quality of the finished product is not compromised. Therefore, it might be proper to accept an unfavorable material price variance to maintain the product's

standards. Variance analysis should not be done in isolation but a holistic view needs to be taken about HAL's operations and the current control system may not lead to this.

HAL is not currently controlling and monitoring aspects which are important for competitive success. HAL's Critical Success Factors have not been identified yet. There is monthly reporting of variances but in addition to this, there should also be follow-up actions for outcome resulting from these reports. However, a month is not inevitably the relevant reporting period for all aspects of HAL's business. If there is a production problem leading to excessive materials wastages, a month is too long time to wait before remedial action are taken. Therefore, real time or coexistent reporting may be more relevant for manufacturing operations. A major deficiency of HAL's control systems is that they do not extend to retailing and installation activities. The 'Summer' installation teams are incentivized to complete ACs which could be good for their productivity. However, there is a high level of complaints associated with their work. As there is no evident means of monitoring the installation team's work, the reasons of the complaints cannot be identified.

(ii) **Critical Success Factors (CSF)** are elements tied to the strategy of business and they represent objectives that business is trying to achieve, as a corporation, as a department or as a business unit. Critical success factors may vary over time and may include items like employee attitudes, manufacturing flexibility etc. There are a range of CSF's which could be appropriate for HAL. They include:

Installations Quality : There are different quality expectations for the two ACs and there have been different levels of quality achieved, can be seen in the historic pattern of complaints. This strongly implies that the quality of installation should be tracked as a separate CSF for each AC. This CSF is important for HAL due to cost implications of rectifications and guarantee claims. It is also important to consider that because of the effect that poor quality will have on HAL's future business.

Customer Satisfaction :Like quality, this CSF will need to be monitored separately for each AC. Customer satisfaction encompass the complete life of a transaction beginning with the initial enquiry about a purchase and continuing after installation for the life of the AC. Customer satisfaction will have an influence on HAL's future business which is dependent, in part, on repeat orders and recommendations. This CSF will also show the market's view of HAL's brand.

Brand Performance : HAL has two distinct brands. They are directed at different market segments and have different associated attributes. 'Summer' ACs offer limited choice to the customer and retail, on average, for ₹ 36,000. HAL would like to maintain this business at its present level (7,000 ACs a year minimum) ₹ 252 million revenue. HAL needs to ascertain where this brand is situated in its life-cycle and what marketing activities may be required to support it. The 'Summer-Cool' brand is aimed at a different market segment and HAL would like to grow this aspect of its business which produces revenue of ₹ 504 million (7 teams x 240 AC per team x Rs. 3,00,000 each). The success of both brands is important for the continual success of HAL and this CSF indicate a complete view of performance.

Manufacturing Excellence: HAL manufactures all the ACs which it sells and installs. Manufacturing must be a substantial part of HAL's total costs and a significant contributor to profitability. Currently, HAL monitors some limited aspects of manufacturing through its control system. However, there are many other aspects which have not been reported upon, for example- innovation, labour absenteeism, manufacturing flexibility and investment in technology. This CSF is much broader than the current control system. It also assists in searching for competitiveness.

(iii) Standard Costing and Reporting System : HAL may be required to abandon or modify its standard costing and reporting system. The rationale behind this is that the current control system might lead to an inappropriate emphasis being placed on certain aspects of performance. It is noteworthy that the installations for 'Summer' AC is causing a substantial level of complaints whereas there has never been a complaint made about a 'Summer Cool' AC. It could be that the different remuneration arrangements for the ACs' installation teams have led to this and as the complaint level is an important aspect of the CSF i.e. Customer Satisfaction, HAL may need to modify its remuneration arrangements. It should also reckon whether it would be benefited from a broader range of variance reporting, for example, it may find reporting useful to report on labour rates and material yield. For all CSFs, HAL will need to determine the appropriate reporting intervals. Although it is useful to synchronize this with the accounting reporting cycle, CSFs and KPIs do not necessarily coexist with accounting period ends. Some KPI's may require to be reported in real-time, for example, material wastage, others may be of a longer duration like Customer Satisfaction. There is a strong argument for disassociation of the CSFs reporting from the financial reporting cycles.

Question 2 : [RTP Nov. 18 + Case Study Digest of ICAI]

Performance Measurement Through Fitzgerald and Moon Model

Learning Horizons is an educational institute that conducts courses for students in accounting, law and economics. The institute is partially funded by the government. The institute aims to provide quality education to students of all backgrounds. The institute admits students who can fund their education privately as well as those who get sponsorship from the government. Knowledgebase is another educational institute in the same city providing courses similar to Learning Horizons. It is entirely private funded college where students arrange to pay for their own fees. It can be taken as a peer institution for comparison purposes.

Information about their operations for the year ended March 31, 2018 are as follows:

(1) Both Learning Horizons and Knowledgebase offer their courses that last the entire year. All of them are regular classroom lectures conducted through the week.

(2) Budget and actual fee rate structure for the year are the same. Information about the fees for each course are as follows:

Budget and Actual Fees in ₹

Course Type	Learning Horizons		Knowledgebase
	Privately Funded	Government Funded	Privately Funded
Accounting	1,20,000	75,000	1,00,000
Law	1,20,000	90,000	1,50,000
Economics	80,000	60,000	1,00,000

(3) Salary details for lecturers and administrative staff are as follows: Salaries in ₹

Staff Type	Learning Horizons		Knowledgebase
	Budget	Actual	Actual
Lecturers	5,00,000	5,50,000	6,00,000
Administrative staff	3,00,000	3,00,000	4,00,000

(4) Budgeted costs for the year based on 8,500 students per annum for Learning Horizons are as below:

Costs	Amount ₹	Variable Cost %	Fixed Cost %
Tuition Material	40,00,00,000	100%	---
Catering	10,00,00,000	75%	25%
Cleaning	1,00,00,000	25%	75%
Other operating costs*	5,00,00,000	25%	75%
Depreciation	1,00,00,000	---	100%

* includes cost of freelance staff

(5) Actual costs (other than salary costs) incurred during the year:

Costs	Learning Horizon	Knowledgebase
Tuition Material	42,00,00,000	40,00,00,000
Catering	10,00,00,000	13,00,00,000
Cleaning	1,00,00,000	1,50,00,000
Other Operating Costs*	6,00,00,000	5,00,00,000
Depreciation	1,00,00,000	1,50,00,000

* includes cost of freelance staff

(6) Keeping in line with latest technological developments, the management of Knowledgebase is introducing on-line tuition support by its lecturing staff. Learning Horizons on the other hand offers distance learning course. A general feedback from prospective students has revealed that some students would like weekend courses since during the week they focus on their regular jobs. Also, some students have requested for intermediate qualification, in the event that they discontinue the course halfway due to inability to complete the course or for other personal reasons.

(7) Both Learning Horizon and Knowledgebase have a policy to have a lecture staff of 50 throughout the year. When there is a shortfall in teaching staff available, instead of recruiting a fulltime lecturer, Knowledgebase substitutes the requirement with freelance staff for lectures. The cost of freelance staff is much lower than regular staff.

(8) Appendix with further details:

Sundry Statistics

For the year ended 31st March 2018

Particulars	Learning Horizons		Knowledgebase
	Budget	Actual	Actual
Number of students:			
Accounting	4,000	3,800	4,100
Law	2,500	2,550	2,500
Economics	2,000	1,500	1,200
Total students	8,500	7,850	7,800
Student mix (%) for each course:			
Privately funded	80%	70%	100%
Government funded	20%	30%	0%
Number of enquiries received:			
Accounting	4,500	4,500	4,600
Law	2,800	2,700	3,050
Economics	2,200	1,600	1,225
Total enquiries	9,500	8,800	8,875
Number of lecturers employed during the year	50	50	50
Number of lecturers recruited during the year:			
Accounting	2	4	1
Law	1	3	-
Economics	1	3	-
Total recruitment	4	10	1
Number of administrative staff	12	12	9
Pass Rate:			
Accounting	95%	99%	93%
Law	95%	98%	90%
Economics	95%	95%	95%
Overall Pass rates for the courses	95%	97%	93%
Days in a year when freelance lecturers were used	-	-	30
Number of new courses under development	-	-	6

You are the management accountant of Learning Horizons. The results for the year are to be reviewed next week by the management. To assess performance, you want to prepare the report as per the Fitzgerald and Moon model.

Required :

(i) Using the "Results" dimension of performance as per the Fitzgerald Moon model prepare a variance ANALYSIS of Learning Horizons actual and budgeted financial performance. Also, based on the information given in the problem, collate the actual financial figures for Knowledgebase, use it as a basis to prepare ANALYSIS of competitiveness of Learning Horizons and Knowledgebase.

(ii) Using the "Determinants" dimension of performance as per the Fitzgerald Moon model EXPLAIN

(a) Quality of service

(b) Flexibility

(c) Resource utilization

(d) Innovation

(iii) Course fees set by the government for various subjects cannot be increased beyond an average of ₹ 75,000 per student. If the costs are maintained within this budget, the government can provide more sponsorship or grants in future. ADVISE a method that the management of Learning Horizons can use to resolve this.

Answer 2 :

Student Note : It is a **comprehensive question** covering various aspects of Building Block Model. Students may treat each part as a separate question. Such a comprehensive question is not expected in the exam but a part of it may be asked.

(i) Analysis of the "Results" dimension of performance as per the Fitzgerald and Moon model

Financial Performance of Learning Horizons and Knowledgebase :

The original budget had been prepared for 8,500 students, while actual enrollments are 7,850 students. At the very onset, reasons for lower enrollments have to be found and analyzed. For comparison of actual and budget, the budget of Learning Horizons has to be flexed to scale. Hence the budget needs to be scaled down to 7,850 for preparing a variance analysis.

Particulars	Learning Horizons				Knowledgebase	
	Budget		Actual		Actual	
	Number	Amount ₹	Number	Amount ₹	Number	Amount ₹
Revenue :						
(a) Private Funded						
Accounting	2,955	35,46,00,000	2,660	31,92,00,000	4,100	41,00,00,000
Law	1,847	22,16,40,000	1,785	21,42,00,000	2,500	37,50,00,000
Economics	1,478	11,82,40,000	1,050	8,40,00,000	1,200	12,00,00,000
subtotal (a)	6,280	69,44,80,000	5,495	61,74,00,000	7,800	90,50,00,000
(b) Govt. Funded						
Accounting	739	5,54,25,000	1,140	8,55,00,000	---	---
Law	462	4,15,80,000	765	6,88,50,000	---	---

Economics	369	2,21,40,000	450	2,70,00,000	---	---
Subtotal (b)	1,570	11,91,45,000	2,355	18,13,50,000	---	---
Total Revenue (a)+(b)	7,850	81,36,25,000	7,850	79,87,50,000	7,800	90,50,00,000
Expenditure :						
Salaries						
Lecturers	50	2,50,00,000	50	2,75,00,000	50	3,00,00,000
Administrative staff	12	36,00,000	12	36,00,000	9	36,00,000
subtotal of salaries	62	2,86,00,000	62	3,11,00,000	59	3,36,00,000
Tuition Material		36,94,11,765		42,00,00,000		40,00,00,000
Catering		9,42,64,706		10,00,00,000		13,00,00,000
Cleaning		98,08,824		1,00,00,000		1,50,00,000
Other Operating Costs		4,90,44,118		6,00,00,000		5,00,00,000
Depreciation		1,00,00,000		1,00,00,000		1,50,00,000
Total Expenditure		56,11,29,413		63,11,00,000		64,36,00,000
Net Profit		25,24,95,587		16,76,50,000		26,14,00,000

Working Notes :

(1) Original revenue budget is for 8,500 students. Actual enrollments are 7,850 students. For comparison, the budgeted revenue has also been adjusted to 7,850 students. The mix between private and government funded students is 80:20 as per the budget. The adjusted student strength is allocated between the courses based on the original budget student strength.

For example, out of the total strength of 7,850 students, based on the budget ratio, 80% are taken to be privately funded. This works out to 6,280 students. The strength for flexible budget for accounting course will be = (6,280 × 4,000/8,500) = 2,955 students. Likewise, the strength for flexible budget for other courses is calculated in a similar manner.

(2) The budgeted expenses are for 8,500 students. Actual students are 7,850. For comparison, variable costs in the budget have been adjusted for 7,850 students. Fixed costs remain the same. For example, tuition material has a budget of ₹ 40 crore for 8,500 students. This is 100% variable, therefore adjusted budget for 7,850 students would be ₹ 40 crore /8,500 × 7,850 students. The total budgeted cost for 7,850 students is therefore ₹36,94,11,765.

Semi-variable costs in the budget, are separated as fixed portion and variable portion for the purpose of recalculation. For example, catering cost is ₹ 10 crore for 8,500students, of which ₹ 2.5 crore is fixed. The balance ₹ 7.5 crore is for 8,500 students and is variable. For 7,850 students, the variable cost works out to ₹ 6,92,64,706. Adding the fixed cost, the total budget for catering for 7,850 students is ₹ 9,42,64,706.

Likewise, the budgeted cost for cleaning and other operating expenses is calculated in a similar manner.

Analysis of Actual Financial Performance with respect to Budget :

(a) Originally the student strength was expected to be 8,500 in comparison to an actual number of 7,850. The reason for this shortfall in enrollment should be analyzed by looking into non-financial performance measures.

(b) On the revenue side, actual revenue of ₹ 80 crore is marginally lower than the adjusted budget of ₹ 81.4 crore. Since the budget and actual course fee rates are the same, the reason for this difference is on account of the mix between the private and government funded students. Actual enrollments had a greater ratio of government funded students, for which the fees are lower. As per the flexed budget, government funded students were expected to be 1,570 versus an actual of 2,355, higher by 50%. Reasons for the change in student mix from a budget of 80:20 to actual mix of 70:30 has to be analyzed.

(c) On the expenditure side, actual costs of ₹ 63 crore is 12% more than the corresponding budget of ₹ 56 crore. The increase for salaries over budget is because a higher market rate that has to be paid for a lecturer. Given that Knowledgebase also pays a higher rate, the budget may need to be amended to reflect a more realistic salary rate. The other major variance is on account of the tuition materials procured for the students. While the budget for 7,850 students is only ₹ 37 crore, the actual expenditure is ₹ 42 crore. Reasons for this large variation has to be analyzed. Reasons could reflect the quality of education imparted. If in reality better quality study materials costs more, the management has to decide whether they would be willing to incur this additional cost. This might have a further impact on the fees charged to privately funded students and the management may also want to ask for increase in the government sponsored fee rate.

(d) Overspend is noticed in other operating costs as well, actual cost is ₹ 6 crore versus ₹ 4.9 crore budget. As mentioned in the problem, 75% of this cost is fixed in nature, amounting to ₹ 3.75 crore (75% of ₹ 5 crore original budget). This portion of the cost should remain the same irrespective of variation in student enrollments. The remaining portion of the budget ₹ 1.15 crore is variable. The actual spend is ₹ 6 crore, of which ideally ₹ 3.75 crore would be fixed. If there is any variation in fixed cost, it should be looked into. If justified, future budgets need to be adjusted to reflect the higher cost. The remaining variable portion should also be analyzed to understand the reason for the higher spend.

(e) Overall, the impact of lower revenue and higher cost, has resulted in a shortfall of ₹ 8.48 crore (34% shortfall) as compared to the adjusted budget for 7,850 students. Action should be taken by further studying other parameters like competitor's performance and other non-financial factors like quality of education, pass rate, innovation.

Competitive Performance of Learning Horizons and Knowledgebase :

Average Revenue and Cost per student

Particulars	Learning Horizons		Knowledgebase
	Budget	Actual	Actual
Total revenue (₹)	81,36,25,000	79,87,50,000	90,50,00,000
Number of students	7,850	7,850	7,800
Revenue per student (₹)	1,03,646	1,01,752	1,16,026
Total cost (₹)	56,11,29,413	63,11,00,000	64,36,00,000
Number of students	7,850	7,850	7,800
Cost per student (₹)	71,481	80,395	82,513

The cost per student at Learning Horizons is marginally lower than Knowledgebase. However, the revenue per student at Knowledgebase is much higher. Analyzing the components further:

(a) Student Mix: Knowledgebase has higher revenue by more than 10 crore, almost 13.3% higher as compared to Learning Horizons. Reasons could be on account of a higher fee rate structure at Knowledgebase as compared to Learning Horizons, where part of the fee structure is government funded at a lower rate.

(b) Course Rate: Learning Horizons charges ₹ 1,20,000 per year for its accountancy course which is higher compared to Knowledgebase's rate of ₹ 100,000 per year. This might be a reason for a higher enrollment at Knowledgebase of 4,100 students compared to Learning Horizons enrollment of 3,800 for the same course. The management has to verify if this higher rate is sustainable.

(c) Course Rate: Learning Horizons charges ₹ 120,000 for its law course compared to ₹ 150,000 at Knowledgebase. However, despite being lower, the enrollment for the course is almost the same. The management has to look at non-financial parameters related to quality, in order to improve enrollments for this course.

(d) Course Rate: Learning Horizons charges ₹ 80,000 for its economics course compared to ₹ 100,000 at Knowledgebase. Consequently, it is able to have higher enrollment for its economics course.

(e) Compared to Learning Horizons, Knowledgebase is incurring ₹ 2 crore lesser on tuition materials. As pointed out earlier, Learning Horizons must try to find out reasons for its higher cost and try to economize on this expense, if required.

(f) Knowledgebase has been using freelance staff for 30 days in a year to keep its expenses lower. Therefore, although it has a higher pay scale for its lecturers, it uses a lower cost resource to meet its teaching staff requirements. Compared to 1 new recruitment by Knowledgebase, Learning horizons has 10 new recruitments during the year. Knowledgebase has substituted any shortfall in teaching staff by hiring freelancers during the year. At the same time, non-financial aspects like quality of education need to be assessed while using the service of freelancers.

(g) The other indicator of competitive performance could be the take up rate (i.e. the rate of conversion of enquiries from prospective students into enrollments for the course). Reference to the budget here is the original budget prepared for 8,500 students, which represents the capacity that Learning Horizons wants to achieve.

Particulars	Learning Horizons		Knowledgebase
	Budget	Actual	Actual
Accounting - number of students	4,000	3,800	4,100
Number of enquiries	4,500	4,500	4,600
Take up rate	89%	84%	89%
Law - number of students	2,500	2,550	2,500
Number of enquiries	2,800	2,700	3,050
Take up rate	89%	94%	82%
Economics - number of students	2,000	1,500	1,200
Number of enquiries	2,200	1,600	1,225
Take up rate	91%	94%	98%

Overall - number of students	8,500	7,850	7,800
Number of enquiries	9,500	8,800	8,875
Take up rate	89%	89%	88%

The take up rate is lower for accounting course at Learning Horizons as compared to Knowledgebase. As explained in point (b), this may be attributed to the higher rate that Learning Horizons charges privately funded students. The higher rate should be justifiable.

The take up rate for law is higher compared to Knowledgebase. As explained in point (c) this could be due to the lower fee rate. Higher enrollment could indicate the popularity of the course. At the same time the comparative pass rate may have to be looked into to judge the quality of the course.

The take up rate for economics is marginally lower than Knowledgebase. However, overall enrollment for this course is much higher compared to Knowledgebase, possibly to the substantially lower rate offered for the course. The management could look at better publicity to improve the take up rate.

(ii) Analysis of the "Determinants" dimension of performance as per the Fitzgerald and Moon model

Quality of Service

The pass rate for each course indicates the quality of course offered. Summarizing from the problem:

Pass rate

Particulars	Learning Horizons		Knowledgebase
	Budget	Actual	Actual
Accounting	95%	99%	93%
Law	95%	98%	90%
Economics	95%	95%	95%
Overall Pass rates for the courses	95%	97%	93%

The targeted pass rate of 95% has been met in all courses, thereby it indicates that a satisfactory level of education is being imparted. In comparison with Knowledgebase the pass rate for all courses is higher, which is a good indicator. This could be a reason to justify the use of full time staff instead of substituting it with freelancer staff.

In the case of accountancy, the management can use the higher pass rate to justify the higher course rate, which may lead to better enrollments for the course. In the case of law, it has the potential of becoming a very popular course, lower course fee with higher pass rate. This can be used to improve enrollments. In the case of economics, the pass rates are at par. The management may use the lower course fee to attract students else may find other ways to make the course more attractive to have higher enrollments.

Feedback from current students and the institute's alumni also provide value information about the quality of the courses and opportunities to improve.

Flexibility

The management of Learning Horizons has to consider the feedback from current and prospective students in order to bring in flexibility to their services. While long distance learning offers some flexibility, the management has to look at alternate channels of delivery like online lecture support by faculty similar to the model that Knowledgebase has developed. Also, offering weekend courses could help improve enrollments. Providing the option to get an intermediate degree gives flexibility to students who are not able to cope up with the course. While this cannot be a main objective of the institute, it still can maintain its motto of imparting quality education for students of all backgrounds.

Resource Utilization

The main resource of an educational institute is its staff. Management of Learning Horizon has to look at the teacher student ratio and compare it to benchmarks of peer institutes. Learning Horizons is having a higher recruitment of 10 lecturers for the year as compared to a budget of 4 recruitments for the year. Reasons for the same need to be looked into. One reason could be a higher turnover ratio among lecturers due to lower salary paid in comparison to the market rate. In comparison, Knowledgebase has a more stable staff, having a recruitment of only 1 lecturer during the entire year. This might be due to the use of freelance teaching staff. Learning Horizon can explore options of using freelance teaching staff to meet its teaching needs, without compromising quality of education.

Innovation

From the information provided, Learning Horizons has a better quality of service in terms of pass rates. However, Knowledgebase is planning to offer 6 new courses in the future. Learning Horizons has to explore options to improve on its current course offerings in order to maintain its market share.

(iii) There is a limit to fees sponsored by the government. Currently, government funded revenue is ₹ 18 crore, almost 23% of the total revenue of 80 crore. Average actual cost per student, referring to the table above, is ₹ 80,395. Since, the government is unwilling to spend more than ₹ 75,000 per student, the management could look at target costing methods to resolve this issue. This reduction of ₹ 5,395 per student can be achieved by identifying opportunities to economize on costs. If feasible, the cost per student can be calculated for each of the courses, to identify where these economies can be achieved. This drive should encompass the administration and support services too. Thus, using target costing approach, the cost can be reduced below ₹ 75,000 to make government funded education profitable, within reasonable limits.

Question 3 : [RTP - MAY 19]

Competitive Advantage and Control System for Airline Industry

Wings International is a major airline operating from India. It is the biggest airline operator within the domestic airline segment and is a well-established player in the international airline segment. Except for a period of few years as outlined below, Wings International has been operating for the last 3 decades in a segment that caters primarily to the business and premium segment travellers. On its international routes and certain long distance, yet busy domestic routes, the airline offers full service on-board. The ticket price includes on board entertainment, transfer of baggage between flights, more leg room, option to upgrade from economy to business class seats, meals and beverages etc. Baggage allowance is liberal with each flyer being allowed 2 checked in baggage and a cabin baggage. A tag line in its advertising goes "GRAB YOUR BAGS, THEY FLY FREE". In the domestic segment, the airline operates across major metro cities and certain other tier-2 cities. International flights operate only from these major metro cities.

Indian aviation industry has been growing exponentially in the recent years due to a thriving economy. Consequently, there have been many new entrants in the domestic segment, offering low-cost fares to customers. These airlines have been offering tickets at huge discounts, thereby attracting a sizable chunk of customers away from Wings International. To counter this and maintain its market share, Wings International also followed suit. For a period of five years, tickets on various domestic routes were offered at low competitive price. At the same time, low fares can be offered only if it is profitable to do so. Therefore, certain cost management measures were undertaken. Wings International converted to a "no-frills" airline on most of the domestic routes. Now a ticket covered only the cost of the seat and 1 checked in baggage and 1 cabin baggage. Going further, baggage allowance was reduced to economize on space and fuel requirements. To avail any other facility, the flyer had to purchase extra. Another measure taken was to offer last-minute deals of tickets at a heavy discount if the flight is not fully occupied. Vacant seats are "perishable", therefore instead of letting them go empty, the flight can be filled at cheaper rates. This management measure based on capacity utilization was expected to yield increase in market share and subsequently the airline's revenue. Tickets could be booked online using the internet rather than through ticket kiosks maintained by the airline at various locations in selected cities.

In order to quickly respond to a competitor's move, the pricing and marketing staff were given sufficient autonomy to make this price war work. Therefore, in many situations, decisions could be taken even without the prior approval of the top management. Meanwhile adding to the stiff competition, fuel prices have been soaring in the last few years. Maintenance of aircrafts, staff compensation and other overheads have also been increasing. Landing fees in major airports have increased manifold due to congestion and limited slots on account of multiple airline operators vying for limited slots.

Given this scenario, after 5 years of operations, the management at Wings International found that they were not able to generate sufficient profits on many of the domestic routes. A price discount by a competitor had to be matched with a similar price discount by Wings International and vice versa. Offering last minute deals to fill up capacity did not generate additional revenue. The volume of last minute flyers was low. It was found that most flyers booking at the last minute were anyway "price indifferent". Had the deals not been offered, the flyer would have been willing to pay more money anyway to use the airline. Therefore, neither did these deals generate extra customers nor extra revenue.

Wings International has always been perceived to cater the premium segment traveler, therefore participating in this price war had been contrary to its image of a premium quality airline. This left a section of the customers confused about the product offering. Therefore, the management of Wings International decided to discontinue its discount pricing strategy and exit the "low cost" airline business. The tickets are now being offered at its usual "full service" rates. This strategy is proposed to be followed for both current and prospective projects and operations.

The government has been formulating policies that are aimed at changing the landscape of the aviation sector. Airports are being built in smaller cities and towns that until date did not have one. This will improve connectivity within the country. It will increase air traffic as the public now has an alternate means to travel other than road and rail transport. Instead of flying between two small airports directly, Wings International proposes to develop a model where flyers from smaller towns are connected to one of the major metro cities which will serve as a main hub. For Wings International, the cost of operations will be lower as compared to flying point to point between the two small airports. For the passengers, better connectivity and more route options will be available. For example, a flyer from a smaller city, wanting to go to a destination abroad can now reach the nearest hub by flying with Wings. From the hub, Wings International can fly the passenger further to the desired destination abroad in its international fleet. For the flyer, this is a better alternative as compared to reaching the hub by say road transport. For Wings International, the proposition broadens its customer base. To this effect, Wings International is already scouting the market for smaller aircrafts that can be operated more economically on the hub-spoke route. Also, it is in talks with for partnership with other airlines, hotels, car rentals in order to offer attractive holiday packages to customers. Since most of the other airlines do not have the scale of operations to achieve the "hub-spoke" model or the ability to offer holiday

packages, Wings International identifies this as a unique proposition that it can offer its customers. This time the proposed tag line for its advertisement would be "WINGS TO FLY ANYWHERE, ANYTIME". Also, Wings International proposed to increase the turnaround time of flights for better capacity utilization.

Ticket booking is still offered over the internet. In the past, customers like this option due to the convenience it offered. Dedicated customer service lines available 24×7 to resolve issues is proposed.

The management of Wings International wants to have a seamless implementation of this project. This could be a game changer for the company that will help to consolidate its position in the aviation industry. Therefore, a meeting has been called to discuss critical reporting that needs to be in place that ensures a successful launch.

Required :

(i) EVALUATE the strategy adopted by Wings International in becoming a "no frills" airline.

(ii) IDENTIFY the strategy adopted by Wings International for the proposed project.

(iii) The entire strategy of Wings International for the proposed project depends on information available about the future outlook in the industry. RECOMMEND guidelines to the management to put in place a control reporting mechanism that can enable Wings International to take preventive measures to avoid errors in its strategy.

(iv) In its previous venture, it took 5 years for Wings International to decide to exit the "no frills" airline operations. To avoid a delay in taking such decisions, RECOMMEND guidelines to the management to put in place a control reporting mechanism that can enable Wings International to correct its errors and make changes in its operations in a more- timely manner.

Solution 3 :

(i) Wings International is a premium segment airline charging "full service" rates for its ticket. However, due to intense competition in the domestic market, it adopted a "low-cost advantage" strategy. Low-cost advantage or cost leadership was achieved through following measures:

(a) Becoming a "no-frills" airline, where the ticket included only the seat and 1 each of cabin and checked in baggage. All other facilities had to be purchased extra.

(b) Baggage allowance reduced to economize of space within the flight and save on fuel costs.

(c) Online ticket booking facilitated so that the number of ticket kiosks maintained by the airline were reduced.

Cost leadership enabled it to offer "low cost" fares to the customers that was generated through (a) giving huge discounts on ticket prices and (b) management of ticket price based on capacity utilization of the flight. Although, due to its long-standing image as a premium airline, the transformation to a "no frills" airline could have caused confusion about the product offering in the minds of discerning traveler, who expect higher service quality. This could have eroded the customer base in this segment.

This "Low-cost advantage" strategy did not work due to the following reasons:

(a) Price war from competitors reduced the ticket prices to levels that were unviable to Wings International.

(b) Variable prices to fill up flight capacity worked against the airline, since it was found that these flyers, due to their immediate need, might have paid a higher price for the ticket than what was offered as part of the deal. These flyers were "price indifferent" which should have been used to Wings International's advantage and not against it.

(c) Cost of operations including fuel prices, aircraft maintenance, staff compensation, overheads such as landing fees had been rising in the recent years.

Due to the above reasons, Wings International's venture as a low-cost airline became unviable.

(ii) Wings International plans to foray into offering its service to flyer from smaller cities. This time it has adopted a "differentiation advantage" strategy. It is marketing in the following ways as being different from its competitors:

(a) Offering a "full service" price where high quality facilities are provided to the traveller. Facilities offered ranging from on flight meals and entertainment, better seating options, liberal baggage allowance and transfer facility etc. differentiate Wings airlines from its "low cost, no frills" competitors.

(b) Ability to offer more connectivity to flyers as compared to other airlines using its unique "hub-spoke" model. "Wings to fly anywhere, anytime" is a catchy line to present this concept to potential customers.

(c) Ability to offer vacation packages due to strategic tie-ups with other airlines and hospitality providers like hotels, car rentals etc.

(d) Product differentiation can also be made between the road and rail transport providers. It can be based on relative facilities offered and better connectivity, if not based on relative cost of travel.

(e) Dedicated customer service lines providing support to customers to resolve issues.

Superior quality, customer responsiveness and innovation will enable Wings International to consolidate its position in the industry in the long run.

(iii) Management Control Report – Feed-forward Control Report

Management control is required to set performance measure to determine if the desired objectives of the company are being achieved or not. Control is required at every stage before the activity commences, while the activity is being performed and after the activity has been completed. Accordingly, control reports generated could be Feed-forward reports (prior), concurrent reports (during) and feedback reports (after).

When the management of Wings International wants to have a reporting system that enables to take preventive measures, it would need to have a "Feed-forward" control. This control will help measure the error before it actually takes places. Preventive measure can then be taken to change the operational variables to achieve the desired result. Guidelines to implement a "Feed-forward" control are as follows:

(a) Thorough planning and analysis is required. In the case of Wings International, the proposal should be planned and analysed at various levels. The strategy of selection of appropriate routes, "full service" pricing, strategic partnerships, financing the proposal etc. need to be taken at a higher level of management. Decisions relating to flight operations, procurement of supplies like fuel, marketing, human resource planning etc. can be done by the management in charge of operations.

(b) Careful discrimination must be applied in selecting input variables. Planning and analysis should be done in an integrated fashion. There should be synergy in the thinking at an operational level and top management strategic level.

(c) Feed forward mechanism should be kept dynamic. Wings International should keep a close watch on the government policies and its implementation in the civil aviation sector. Reporting may be done in pre-determined intervals say a monthly feed forward reporting can be decided upon. Changes to plans should be made in a timely fashion to make them relevant.

(d) A model control system should be developed. Authority and responsibility for various functions need to be determined and clearly defined while developing this model.

(e) Data on input variables should be collected regularly. For example, Changes in fuel prices, which form a large share of expenses, has to be tracked continuously. If the prices are expected to fluctuate widely, hedging options or long term price agreements with suppliers can be considered.

(f) Feed-forward control requires action. At the time of implementation, the control model developed should be followed in order to establish a systematic course of operations.

(iv) Management Control Report – Feedback Control Report

These are control reports that provide feedback about the operations. It tracks the actual results with the budgeted / forecasted results. These reports in themselves do not cause a change in performance. The management has to take timely action to correct the errors and change its operations, if required.

Guideline to implement this reporting system are as follows:

(a) Feedback report should disclose both accomplishment and responsibility. As discussed in the feed forward report, Wings International would have already put in place an organizational structure defining individual authority and responsibility. Performance should be tracked accordingly, so that individual performance can be assessed.

(b) Feedback reports should be extracted promptly. The management has to decide the interval at which these reports need to be generated. The interval should be such, that changes required can be assessed and action can be taken in a timely manner. In the previous instance, Wings International had given autonomy to the marketing and pricing division to take decisions to meet the competitor's actions. It took five years to determine that the project was unviable. However, a timely reporting mechanism such as a feedback report should have been in place to appraise the top management about the decisions taken. This information would have enabled the top management to make an earlier assessment as to the viability of "no frills" airline.

(c) Feedback reports should disclose trends and relationships. Trends could be customer travelling preferences, deals offered by competitors or other changes in flight operations. Relationships could be supplier relationships, customer relationships, strategic partner relationships etc. Information generated from all these areas should be collated in order to provide proper feedback to the management.

(d) Feedback reports should disclose variations from standards. These standards could be from financial budgets or from non-financial metrics identified as key performance indicators. For example, delay in flight operations could be a non financial metric that can be tracked against an expected standard set in the planning stage. The information metric for actual operations should be assessed in the same manner with which the standard was set. For example, a flight delay in operations could be a delay in arrival beyond 15 mins. The same standard should be used to assess actual performance.

(e) Feedback reports should be in a standardized format. It should be easily understood and well presented to the management. Facts should be stated without ambiguity and in a standard manner.

Question 4 : [RTP - MAY 19]

Business Excellence Model for Clothing Industry

As a guest lecturer at a symposium for Business Excellence where you are giving a lecture on "Sustaining Business Excellence". A manufacturer of a fashion clothing line is one of the participants at the symposium. He has the following query:

"We are an apparel company that manufacture and sell our fashion clothing and accessories directly through 30 stores spread across India. Shortly we are planning to establish similar outlets overseas. Our business is under constant change due to changing customer trends. At the same time, we are the largest company in our industry segment in India, both in terms of market share and profits. We have a satisfied base of customers who are loyal to our brand. Shareholders are also satisfied stakeholders due to good returns provided on their investments. What would be the relevance of Business Excellence model to our company?

Thank you !"

You are required to frame an appropriate response to this query.

Required :

(i) EXPLAIN the importance of business excellence to an organization.

(ii) LIST the tools available to achieve and sustain excellence.

(iii) APPLY the fundamentals of EFQM model on the apparel company.

(iv) EXPLAIN the relationship between various criteria of the model in general terms.

Solution 4 :

(i) Business Excellence is a philosophy for developing and strengthening the management systems and processes of an organization to improve performance and create value for stakeholders. Stakeholders in an organization are not limited to shareholders alone. They include also customers, employees and society. An organization does impact all the stakeholders in different ways, yet they are all interlinked to each other. Customers' needs are of paramount importance to companies. Yet given uncertain conditions, shareholders demand challenging return on their investments. Employees need more from their company than just their pay-check. They want the company to enable to grow their knowledge and experience that can improve their career growth. Society expects companies to operate ethically and for the overall betterment of the society and environment.

For several years businesses have been operating under challenging circumstances. For example, landline phones have been entirely replaced by mobile phones. Television programs can be watched seamlessly on internet enabled mobile phones. Not just this, today's smart phones have computing capability much more than the computers that were used in Apollo Mission to send the first man to moon! The proliferation of mobile phones has changed not just the telecom industry but also others like communication, banking, e-commerce etc. The pace of change is both exhilarating and challenging.

To manage this complex scenario, a company cannot focus on only one aspect of their operations. Optimize processes, delivery quality to customers, manage employee talents, earn required return on investment while managing to be a socially responsible organization. In short, the company should achieve excellence in all aspects of its operations. This is business excellence. Business excellence principles emerged because of development of quality drive into traditional business management. It is imperative not just to achieve excellence but also to sustain it.

Business excellence models are holistic tools that help companies develop stakeholder focused strategy. Each operation within a company enables a corresponding result. Business models present a formal, standardized cause effect relationship between different operations and their resultant consequences. If the company want to achieve a different result, it has to

do things differently. This can be better analysed through these models. Continuous improvement on various operations will ultimately lead to excellence. More importantly, these models need to be used to sustain and maintain excellence to retain their competitive advantage. They are not to be taken as one time exercise by the company. Assessments using this model have to be made periodically so that timely action can be taken to achieve the desired result.

(ii) Some of the popular business excellence models are (i) the European Foundation Quality Management (EFQM) model (ii) Baldrige Criteria for Performance Excellence (iii) Singapore BE Framework (iv) Japan Quality Award Model and (iv) Australian Business Excellence Framework.

(iii) The apparel company is a well-established player in the industry. It is a growing company that is looking to expand its operations overseas. To achieve business excellence in this environment, the company could adopt the EFQM model, which is a popular model.

The EFQM model was developed by the European Foundation for Quality Management. The model provides an all-round view of the organization and it can be used to determine how different methods fit together and complement each other. It can help the company understand the cause and effect relationships between what their organization does and the results it achieves. Creating an EFQM Management Document gives the organization a holistic overview of its strategic goals, the key approaches it has adopted and the key results it has achieved.

The fundamental concepts for excellence are the basic principles that describe the essential foundation for any organization to achieve sustainable excellence. With respect to the company they can be detailed as below:

(a) Adding value to customers: Companies need to understand their customers, their needs, anticipate their needs and make use of opportunities to fulfill their expectations.

In the current case, fashion apparel business is ever changing and dynamic due to the changing trends in customer's tastes. This could differ across locations within India and abroad. In the era of e-commerce, competition would be cut-throat. Before going to "how" it can meet customer's needs, the company should be clear on "what" need of the customer it can satisfy. For example, should the company cater to Indian apparel market, western apparel market, men or women or children apparel market etc. Once the "what" is clear, the company should have mechanisms in place to find out and anticipate customer tastes. Accordingly, it should structure its operations to add value to the customers in terms of quality, availability, support, and experience.

(b) Creating a sustainable future: Society and environment (People and Planet of Triple Bottomline concept) play a major role in ensuring the sustainability of business. A company should have as much positive impact on its surroundings and try to minimize any negative impact on the same. Here, the company should assess the environmental impact of its operations, measures to minimize adverse impacts, business impact on the society etc. For example, leather is contended to be harmful to the environment since it requires the skin of animals specially cattle hide, needs huge amount of energy and chemicals to process it. This has a negative environmental impact. As regards societal impact, suppliers of cloth to the apparel company should not indulge in labor malpractice like child labor and should adhere to safety standards within its factories. The company should procure cloth only from suppliers who adhere to such standards.

(c) Developing Organizational Capability: Companies need to manage change within the organization and beyond. The company should identify "what it is capable of being great at?" in order to differentiate it from its competitors. For example, the apparel company may have the capability of tracking its inventory at the stores on real time basis. As soon as the inventory falls below a certain level, the stores issues fresh products to stock up.

This ensures that there are no stock outs at the retail outlet. This ability to track inventory real time and ability to stock up quickly may be unique to the company that gives it a competitive edge. Another can be the ability to quickly change the apparel production to meet changing trends. Likewise, the company should identify and develop unique capabilities to have a competitive edge in the market.

(d) Harnessing creativity and innovation: Continuous improvement and innovation brings value to the company. The company should promote a working environment that enables and appreciates creativity and innovation. For example, new apparel designs can be promoted to test the market. If found feasible, the company can go for mass production of the same.

(e) Leading with vision, inspiration, and integrity: The tone at the top defines the rest of the company. The leaders and management of the company should have a clear vision of what the company wants to achieve, develop strategy to achieve it, work with integrity and ethics. Leaders shape the future of the organization.

(f) Managing with agility: Agility would be the capability to identify and effectively respond to opportunities and threats. For example, although the apparel company is in an expansionary phase, it should consider the threat, yet opportunity of using e-commerce as a platform to reach out to customers directly. Brick and mortar stores are becoming largely redundant due to online platforms, a threat the company should recognize and act upon.

(g) Succeeding through the talent of people: An organization is only as good as the people who work in it. There should be an atmosphere of teamwork that enable achievement of organizational and personal goals. Performance evaluation, reward and recognition programs, training and talent network are ways to cultivate talent within the organization.

(h) Sustaining outstanding results: Use of EFQM model is not a onetime exercise. Constant and periodic evaluation is required to keep up and sustain excellence.

(iv) The criteria of the model are comprised of 5 enablers and 4 results. Enablers covers what an organization does (its objective) and how it does it (strategy, use of resources to achieve it).

(a) Leadership: A leader defines the organization's culture. They enable the organization to achieve its goals by taking the correct decisions at the correct time. To do this they should have sufficient skill, work as per the company's code of conduct and should be ethical in their dealings.

(b) Strategy: Operations should be planned and directed as per a clearly defined strategy. The company's vision and mission statement with respect to its various stakeholders are the goals that the organization wishes to achieve. Strategy (plan) enables the company to achieve these goals.

(c) People: Excellence is possible only if the people working in the company wish to achieve it. They must be motivated, recognized, and managed to enable them to work towards the company's vision and mission. The work culture should be that this opens up opportunities for personal development as well. This would cultivate a bond with the organization, which enables people working within to strive for excellence.

(d) Partnerships and resources: Effective management of partnerships that the company has with other organizations is critical to success. Partners could be external vendors, suppliers, and service providers. The services of partners enable business to operate smoothly. Resources, both tangible and intangible should be managed optimally. Tangible resources can be financial (cash, bank accounts) and physical assets (machinery, building, land etc.). Intangible resources would be intellectual property rights, information technology, licenses etc. Proper management of resources enables optimal results.

(e) Processes, Products, and Services: A company exists because of its processes, products, and services. They should be managed and continuously improved to create value to the stakeholders.

Results are what the organization achieves following its operations and decisions. As explained before, the stakeholders of the company are investors (business), people (employees), customers and society. In order to track performance, the company has to develop Key Performance Indicators (KPI)s for each of the stakeholder groups. Results should be tracked periodically. Changes to targets and benchmarks should be continuously made to reflect the current objectives that the company wants to achieve. Some of the results that the company can look at are:

(a) Customer results: Are the customers of the company satisfied with the products and service? How does the company fare in terms of brand loyalty? Is the customer base growing to indicate increasing market share?

(b) People results: Does the company have skilled and motivated employees? What is the employee turnover with reasons for the same? Does the company have proper access to hire required talent? Are the employees motivated, trained, recognized, and rewarded for their performance? What is performance measurement system, is it robust and accurate to measure performance?

(c) Society results: Is the company a good corporate citizen. Are the objectives of corporate social responsibility being met? If the organization is a not for profit organization, is it meeting its objectives and goals?

(d) Business results: Is a for profit organization achieving the required return on investment, profitability that the shareholders and other investor demand? Has the company been able to manage financial and other risks properly?

Enablers enable achievement of results. EFQM model documents this flow in a structured way. It highlights the strength and weakness of the enablers. With this information, the company can alter its operations and strategy to achieve desired results. On assessment, there is a flow from results to enablers. If the results have been achieved, enablers continue to operate status quo. If the results fall short of targets, changes have to be made to enablers to improve performance.

Therefore, it can be concluded that the EFQM model encourages constant self assessment to achieve excellence. When a company wins an excellence award based on a business excellence model, it gains in stature within the industry. This recognition could work to its advantage financially and otherwise.

Question 5 : [Case Study Digest of ICAI]

Topic : Benchmarking

Healthcare hospital provides medical care to patients to all strata of the society at nominal cost. Hospital has been operating for the last 15 years. It gets grant from the government that helps it sustain its operations. Each year an annual report is submitted to the officials in the health ministry that is in charge of giving out grants to hospitals. Each year over the last 15 years, grants given to the hospital has been increasing. This increment was found necessary to meet the increase in operational costs due to inflation. While operations have been moderately successful in the recent years, the grants committee is of the opinion that the hospital can manage its funds better.

To benchmark performance, performance of Healthcare hospital is being compared with the performance of another government funded hospital within the same city, Lifeline Hospital. Both hospitals have similar scale of operations and get the same amount of grant. Given below are some of the parameters that are tracked at both hospitals:

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Total inpatients	1,10,000	96,000	1,00,000
Delay in admission due to unavailability of beds :			
Number of inpatients waiting for more than 1 week	1,100	2,880	500
Number of inpatients waiting for more than 2 weeks	-	960	-
Total outpatients	90,000	95,000	93,000
Delay in appointments due to unavailability of medical staff :			
Number of outpatients waiting for more than 1 week	900	1,900	465
Number of outpatients waiting for more than 2 week	-	475	-
Number of emergency admissions	400	600	500
Delay in providing medical care to emergency admissions	-	5	-
Number of medical staff shortages (position not filled for more than one month)	3	5	1
Cancelled or delayed operations (due to non-clinical reasons)	5	20	6
Number of complaints received related to medical care	500	1,350	600
Number of complaints resolved within 15 days	500	1,080	550
Number of deaths post operation (all inpatients)	4,400	2,880	2,000
Number of medical negligence case that the hospital lost	2	5	-
Number of errors in prescription of drugs	15	45	10

Number of infection outbreaks within the hospital	-	2	-
Bed occupancy rate	90%	85%	94%
Average patient stay (days)	4	6	5
Operating theatre utilization rate	95%	90%	95%
Revenue including government grant (in crore)	15	13	16
Operating expenses (in crore)	12	12	12
ROI	8%	5%	9%
Staff Training sessions (hours)	500	500	600
Research publications	5	3	6

- Both hospitals have 50 wards with 10 beds in each ward.
- Each hospital has 50 doctors from various specialties and 75 nurses.
- Both hospitals were open all days of the year.

Required :

(i) The grants committee wants to ANALYZE performance of both hospitals with respect to:
- Access to services
- Clinical performance
- Efficiency of operations
- Financial management
- Innovations

(ii) While preparing the balanced scorecard, how will you CATEGORIZE the above performance measures?

Solution 5 :

Student Note : It is a **comprehensive question** covering various aspects of performance measurement. Each part of this question may be treated as a separate question. Such a comprehensive question is not expected in the exam, but a part of this question may be asked.

(i) Analysis of Performance with respect to :

Access to Services :

Access to service is an indicator of whether patients are able to get medical care when they need it. Better access to medical service will improve chances of recovery for the patients. From the given information in the problem, this can be assessed using the following parameters:

(a) Delay in admission to inpatients due to unavailability of beds.
(b) Delay in appointments to outpatients due to unavailability of medical staff.
(c) Delay in providing medical care for emergency admission.
(d) Number of medical staff shortages.
(e) Cancelled or delayed operations.

The hospital should aim at reducing the delay and shortages in order to provide patients with better access to medical services.

(a) Delay in admission to inpatients due to unavailability of beds:

As per the hospitals' policy, patients who need admission have to be accommodated within 1 week to get access to services. Any delay beyond this period is tracked by their information system. For delays, due to unavailability of beds, the hospitals are tracking two time lags, delay by more than a week and delay by more than 2 weeks. Unavailability of beds shows that there are constraints in the capacity of patients to whom the hospital can provide service.

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Total inpatients	1,10,000	96,000	1,00,000
Delay in admission due to unavailability of beds			
Number of inpatients for more than 1 week	1,100	2,880	500
Number of inpatients for more than 2 weeks	-	960	-
Percentage of inpatients denied access to service			
By more than 1 week	1.00%	3.00%	0.50%
By more than 2 weeks	0.00%	1.00%	0.00%

As can be seen, Healthcare hospital has a target to provide admission within a week to 99% of inpatients, delay beyond a week may happen only in 1% of cases. Delay beyond 2 weeks should not occur. However, actual performance indicates that Healthcare hospital could provide admission within a week only to 96% of inpatients. There has been a time lag of more than a week in providing admission to 3% of the inpatients. This is already 2% more than the target. Further, time lag beyond 2 weeks in providing admission has occurred in 1% of inpatients. Therefore, 4% of the inpatients had to wait for more than a week, in some cases more than 2 weeks, to get admission. In contrast at Lifeline hospital, only 0.5% of inpatient faced time lag of more than a week in getting admission to the hospital. There are no instance where inpatients requiring admission had to wait more than 2 weeks.
This shows that Lifeline hospital provides better access to services as compared to Healthcare hospital.

(b) Delay in getting appointment due to unavailability of medical staff:

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Total outpatients	90,000	95,000	93,000
Delay in appointment due to unavailability of medical staff :			
Number of outpatients waiting for more than 1 week	900	1,900	465
Number of outpatients waiting for more than 2 weeks	-	475	-
Percentage of inpatients denied access to service			
By more than 1 week	1.00%	2.00%	0.50%
By more than 2 weeks	0.00%	0.50%	0.00%

As per the hospitals' policy, outpatients should be able to get appointment within a week to meet the medical staff. Delay beyond a week is tracked by the hospital's information system as delay beyond a week and delay beyond two weeks. Healthcare hospital targets to provide appointments to meet medical staff within 1 week to 99% of the outpatients. Delays due to unavailability of medical staff can occur only in 1% of the cases. However, actual appointment schedule indicates that 2% of the outpatients had to wait for more than 1 week and 0.5% of the outpatients had to wait for more than 2 weeks to meet the decor. This, indicates that Healthcare hospital has not been able to meet its target. To improve performance the reason for unavailability of medical staff has to be understood. It might indicate that more hiring is needed or higher medical staff turnover ratio.

In comparison, Lifeline hospital has provided better services to outpatients, only 0.5% of the patients had to wait beyond a week to get appointment with the doctor. This shows that Lifeline hospital provides better access to services as compared to Healthcare hospital.

(c) Delay in providing medical care to emergency admission patients:

In the case of Healthcare hospital, there were 5 instances when medical care could not be provided to emergency admission patients immediately. The hospital aims never to have such instance however this target has not been met. In case of emergencies, medical care is required urgently, any delay may impact recovery of the patient. Reasons for the delay in providing medical care to such patients have to be investigated. Lifeline hospital has been able to provide medical care immediately to all its emergency admission patients.

This shows that Lifeline hospital provides better access to services as compared to Healthcare hospital.

(d) Medical staff shortages:

The hospital should have enough doctors and nursing staff at any point in time to be able to provide good quality of medical care to patients. If there are vacancies, the existing staff have to bear extra patient load. This could lead to delays, some of which have been outlined above. This results in patients getting lesser access to medical services when they need it. Healthcare hospital has 5 medical staff vacancies that have been vacant for more than a month, as compared to the target of 3. There are lesser resources available to provide patient care. In comparison, Lifeline hospital has only 1 position that was vacant for more than a month.

This shows that Lifeline hospital provides better access to services as compared to Healthcare hospital.

(e) Cancelled or delayed operations due to non-clinical reasons:

When operations are cancelled or delayed due to non-clinical reasons, it indicates that there are administrative issues that deny patients access to medical care. Possible reasons could be unavailability of operation theatres, unavailability of support staff or unavailability of required instruments or medicines. Compared to an expected 5 such instances, the actual cancellations or delays have been 20 in the case of Healthcare hospital. This is a huge variation that needs to be investigated. Given in the problem that operation theatres are used only to 90% of their availability. Possibly cancellation are not due to unavailability of operation theatres. It could be due to support staff shortages or unavailability of instruments. Reasons have to be investigated to take appropriate action. Comparatively, such instances are fewer in the case of Lifeline hospital.

Clinical Performance

Clinical performance can be evaluated by looking at the quality of actual work performed. The parameters to look at are:

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Number of complaints received related to medical care	500	1,350	600
Number of complaints resolved within 15 days	500	1,080	550
Number of deaths post operation (all inpatients)	4,400	2,880	2,000
Number of medical negligence case that the hospital lost	2	5	-
Number of errors in prescription of drugs	15	45	10
Number of infection outbreaks within the hospital	-	2	-

(a) Number of complaints received related to medical care:
As can be seen from the table, the number of complaints received by Healthcare hospital is more than twice the expected volume. Only 80% of these have been resolved within the time frame of 15 days. Comparatively, Lifeline hospital gets fewer complaints and the complaint resolution rate within the given framework is much higher at 92%.

(b) Number of deaths post operation:
The actual deaths post operation are much lesser. While this is a good indication of quality, the objective of the hospital should be to keep this as low as possible. Lifeline hospital has a lower mortality than Healthcare. Good quality medical care can contribute towards preventing deaths post operation.

(c) Number of medical negligence case that the hospital has lost:
The fact that the hospital has lost a case of medical negligence shows that the quality of clinical care provided a questionable. In case of Healthcare hospital, the actual number of such cases lost is 5. This is in excess of an expected loss of 2 cases. This indicates that quality of clinical care is found wanting at Healthcare hospital. Lifeline hospital has not lost any case of medical negligence implying that quality of medical care is better than Healthcare.

(d) Errors in prescription of drugs:
Prescription of drugs to cure an ailment should always be accurate. Any errors could be disastrous to the patient's health. Compared to the expectation, Healthcare has three times the number of prescription errors. This shows that medical staff have been negligent in providing their service. Again, Lifeline hospital has a better record comparatively.

(e) Infection outbreak in hospital premises:
Outbreak of infection within hospital premises indicates that proper standards of hygiene are not being maintained at Healthcare hospital.

Efficiency of Operations

Operating efficiency can be assessed using the following parameters:

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Bed occupancy rate	90%	85%	94%
Average patient stay (days)	4	6	5
Operating theatre utilization rate	95%	90%	95%

(a) Bed occupancy rate:
Bed occupancy is a factor that is dependent on the number of inpatient admissions. While this factor cannot be controlled by Healthcare, it is important to track this ratio to look at capacity utilization. The bed occupancy rate is lower than the expected rate. If this persists over a longer period, the hospital may want to explore the option of scaling down the number of wards and beds. The space freed up can be utilized for some other productive purpose.
However, as explained earlier, 4% of the inpatients at Healthcare hospital are being denied admission due to unavailability of beds. This is a contradiction that needs to be investigated. Possible reasons could be administrative ones like inability to get the room and bed on time once the previous patient vacates. Else there may be mis-communication between the department discharging patients and the department admitting patients. Bed occupancy may not be tracked on real time basis due to which these delays in admission have occurred.
Lifeline hospital has an occupancy of 94% that shows it has just the sufficient number of beds to meet demand.

(b) Average patient stay (days) in the hospital:
On an average a patient is staying in the hospital for 2 days more than the target of 4 days. While this factor is dependent on the type of ailment, lower the patient stay the higher can be bed occupancy rate. That means more patients can utilize the same resources if patient stay is shorter. This may be needed when there is a constraint on the beds available, which is not the scenario in the current case. However, before taking action to improve bed occupancy rate, a hospital should ensure that quality of medical care given is not compromised.

In the given problem, bed occupancy is only 90% at Healthcare hospital. Therefore, the hospital can afford to have longer patient stay. Lifeline hospital has 1 lesser patient stay day, only marginally different from Healthcare's record. In both cases, since there is no constraint on bed occupancy, higher average patient stay can be managed without any constraint.

(c) Operating theatre utilization rate:
Utilization of operating theatre is subject to the nature of treatment, something that cannot be controlled by a hospital. However, it is necessary to track this parameter since it shows whether the facilities that are currently in place are sufficient and are utilized properly. Again, at 90% Healthcare hospital has a lower operating theatre utilization rate compared to the expected usage. If this continues in the long run, the number of operating theatres can be reduced to make resources available for other uses. Lifeline hospital has a higher utilization rate at 95%, indicating more efficient use of resource.

Financial Management

Healthcare hospital has an actual surplus ₹ 1 crore compared to a budget of ₹3 crores (Surplus = Revenue – Operating expense). ROI of 5% is below the target of 8%. The grants committee feels that there is a wastage of funds at the hospital. Therefore, areas of wastage should be identified such that operating expenses can be controlled better. Lifeline hospital has a surplus ₹ 4 crores. Since there are other hospitals like Lifeline that are vying for grant. Healthcare has to make itself competitive in this respect. Therefore, it has to be more efficient, effective and economical in its operations.

Innovations

Research publications indicate that newer discoveries have been made in fields that can further the horizons of knowledge. Therefore, research publications are an important indicator of innovation.

While staff training is not directly related to innovations, they do keep the experts up to date in their subject area of expertise.

(ii) Performance Measures Categorized into the Balance Scorecard

- Customer Perspective would include availability of service measures and clinical performance measures.
- Internal Process Perspective would include measures used to determine efficiency of operations.
- Financial Perspective would include details of the surplus generated and ROI.
- Learning and Growth Perspective would include staff training and research publications.

Combined with other parameters that the grant committee finds important, the balanced scorecard can benchmark the hospital's performance with its own targets and the performance of Lifeline hospital. Decision to extend grants and its quantum can be decided on this basis.

Question 6 : [May 2019 Exam - 20 Marks]

Topic - VCA & Performance Prism

Audio Tech is a company that designs, develops and sells audio equipments. Audio Tech is best known for its home audio systems and speakers, noise cancelling headphones, professional audio systems and automobile audio systems.

Audio Tech sells audio equipments to consumers through its large network of retail outlets in its home country and via the company's website.

Audio Tech purchases the materials and components that it needs to manufacture audio equipments from a number of different suppliers. All of the purchases are delivered to a company's godown at its factory and are held there until they are needed for production and assembling.

Finished products are transported from the factory to Audio Tech's retail outlets by company's own trucks. The trucks follow the same schedule each week irrespective of the load they are carrying. Audio equipments that are required for sale via the company's website are transported to Audio Tech's distribution centre.

The company believes that it can attract more customers by offering quality products at reasonable prices. Each unit is tested for quality with a real time analyzer ipad app and a calibrated microphone to measure how consistently each sound system reproduced various frequencies. A bass-test sweep tone allows checking how well the subwoofer managed low-end frequencies. Finally, they drive each in cars briefly to see how sound quality changes while on the move.

The company aims to build customer loyalty also through high level of customer services and value chain analysis. The customers can return the product if quality specifications are not met. There is a separate department to handle such complaints.

Audio Tech had implemented Balanced Scorecard as a performance measurement and management system. Company has been doing great on financial parameters and customer satisfaction parameters. Market capitalization of the company has been increased considerably over the years.

Of late, the company has witnessed high employee turnover ratio. Though the company has a formal exit interview process for the resigning employees, the input received from these interviews is rarely considered in improving HR practices. One of the common feedbacks from employees was that working hours are too long and they have to frequently work on weekends also and there is so much pressure to improve customer service without adequate support of system and processes. Also the truck drivers have been on strike thrice in the last one year demanding better pay, retirement benefits and good working conditions.

Audio Tech is keen to address the above issues and recently held a meeting to discuss the performance of the company. The Management Accountant suggested to the Managing Director to use an alternative performance measurement mechanism which considers all the stakeholders instead of just shareholders and customers. The Managing Director is skeptical of the Management Accountant's suggestions and is unclear as to whether they are suitable for the company or not. Therefore, the company seeks your assistance.

Required :

(i) Identify and Explain the various primary activities of Audio Tech in its value chain. Also suggest, if there is any scope for cost reduction in these activities. **(10 marks)**

(ii) Recommend an alternative performance measurement mechanism which considers all stakeholders instead of just shareholders and customers. Also indicate the performance measures as applicable to the situations of Audio Tech in the alternative mechanism suggested by you. **(10 marks)**

Answer 6 :

(i) The Various Primary Activities of Audio Tech in its Value Chain Analysis :

Michael Porter describes the value chain as "internal processes or activities a company performs to design, produce, market, deliver and support its product. Rather than looking at costs as per accounting cost pools, the value chain model focuses on the work flow of an organization in the form of discrete set of activities that are linked to each other. The value chain model is a generic model that examines activities as Primary Activities and Secondary Activities. Passing through each activity, the product or service gains some value. The idea is to (a) eliminate non-value adding activities and (b) identify product differentiating or cost leadership opportunities among the value adding activities.

Individual activities reflect the company's strategy implementation of its strategy and underlying economics of the activities themselves.

Profit margin for the company = Value created less the cost of creating that value

Primary activities are those activities that enable inputs (raw material) to be transformed into output (finished goods) or in the provision of service. Primary activities as per Porter's model are:

Inbound Logistics

Activities related to receiving, storing and distributing the inputs (raw materials) to the production process.

Audio Tech has its materials and components needed to manufacture audio equipment delivered to its godown at the factory premises. These materials are stored until needed for production and assembling at the factory. These are the inbound logistics related activities.

Operations

Activities involved in transforming raw materials into final products. These would include machining, packaging, testing and equipment maintenance.

Audio Tech's work flow activities related to manufacturing of the audio equipment and components need to be considered here. In addition, the testing of equipment using ipad application, bass sweep test as also sound quality check after assembly into the car, are operations related activities.

Outbound Logistics

Activities involved in collecting, storing and distributing the products from the assembly line to the end user customers. This includes finished goods warehousing, delivery vehicle operations, order processing and scheduling.

Some of the activities that would be classified here are :

(a) Storage of Audio Tech's finished goods within factory premises and at its distribution centre.

(b) Scheduling and dispatch of goods using trucks to retail outlets and distribution centres.

(c) Activities related to order taking from retail outlets as well as direct orders on the company's website.

Marketing and Sales

Activities such as advertising, promotion, distribution channel selection, sales force management, pricing policy and such other activities that make the customer aware of the product would be listed here.

All of Audio Tech's activities that relate to the above list of activities whereby it aim to spread customer awareness would be classified here. It aims to build customer loyalty by offering quality products.

Service

Activities related to after sales service such as installation, repair and part replacement would be classified here.

Audio Tech has a separate department to handle customer complaints. Customers can return the product if quality specifications are not met. Also, any activity relating to after sale service would be classified here.

Below are certain measures that Audio Tech can implement to Reduce Costs :

(a) Just in Time raw material procurement system : Procure input materials and components only when needed for production and handling. This would reduce inventory holding costs. Less inventory on hand could also result in savings in storage and material insurance costs. Before implementation, the company needs to consider the risk of loss incurred on account of stock-outs. It needs to develop close relationships with its suppliers to ensure streamlined delivery of inputs. At the same time inputs should meet the required quality standards.

(b) Company's trucks deliver the finished goods to retain outlets as per a fixed schedule each week, irrespective of the load they carry. This indicates that there may be possibilities of dis-economies of cost. If there is a pile up of inventory due to lesser number of truck delivery runs, it could lead to high inventory holding cost. Conversely, economies of delivery cost would creep in. Therefore, the production and truck delivery schedule should be streamlined efficiently and economically.

(c) Audio Tech lays importance in the quality of the product to ensure customer satisfaction. Lower the defects higher the customer satisfaction. It has extensive testing and inspection processes in place. This preventive step should be assessed to find out if it is effective in reducing the cost of poor quality – internal failure cost as well as external failure costs. Internal failure costs (repair, scrap, rework) are associated with defects found after the production but before delivery to the customer. This can be avoided, if quality inspection is

done throughout the production work-flow rather than just at the end of production. External failure costs (repairs and servicing, sale returns, warranty claims, complaints) are incurred when the customer finds the product defective and returns it. External failure costs can severely impact customer loyalty and should be minimized.

(d) Audio Tech should invest in preventive and appraisal costs to ensure good quality in order to balance out the cost of poor quality. Preventive costs would include quality planning and assurance, error proofing, quality improvements, education and training. Appraisal costs could be inspection, quality audits, supplier rating etc. Total Quality Management (TQM) and Six Sigma could be effective tools to ensure efficient and good quality production that would minimize cost of poor quality.

(ii) Alternative Performance Measurement Mechanism considering all Stakeholders :

Audio Tech uses Balanced Scorecard to measure performance. Balanced Scorecard focuses on the financial, customer, business, and innovation perspectives. It is given that the company is doing well on financial and customer satisfaction parameters. Market capitalization has also increased over the years, the company is on a growth trajectory. However, the company is facing issues in the form of high employee turnover and dissatisfaction among truck drivers who deliver the goods.

An alternate performance measurement mechanism can be **Performance Prism**. This is a second-generation performance management framework conceptualized by Andy Neely and Chris Adams. The reasons why it would be an effective replacement for models like Balance Scorecard are :

(a) Balanced scorecard focuses on just two of the stakeholders – Investors and Customers. Performance measurement of other stakeholders like employees, suppliers, government etc. have not been considered. The other stakeholders play an important role in the growth of the company's business. Hence, performance measures are needed to monitor both their contribution to the company as well as their overall satisfaction with the company.

(b) Most of the performance models do not focus on the changes that need to be made to strategies and processes. Balanced Scorecard assumes that once the strategies are implemented, measuring a relevant set of metrics of performance will ensure that the rest of the business also functions property. However, this is not true. In the case of Audio Tech, both customers and shareholders are happy with the company's performance. Yet even in a growing business, the drivers of growth, namely other stakeholders like employees and suppliers are not satisfied. Neither is their contribution nor their satisfaction is captured under the Balanced Scorecard performance measurement.

(c) A company has a "Quid Pro Quo" relationship with all its stakeholders. Stakeholders contribute to the company's business while they also derive benefits from it. For example, employees perform their functions well, this is their contribution to Audio Tech's growth. In return, employees would want good working condition and pay to remain motivated and loyal to the company.

Therefore, Performance Prism can be an alternate performance measurement mechanism that considers metrics related to a broader set of stakeholders of an organization, not limited to just customers and shareholders alone.

Five Interrelated Facets of the Performance Prism :

Stakeholder Satisfaction

"Identify the organization's set of stakeholders and their needs"

Unlike a balanced scorecard, the performance prism focuses on all the stakeholders of a company. Audio Tech has satisfied investors and customers, but dissatisfied employees and truck operators. The company must likewise identify all its stakeholders and determine the

relative importance of each of the stakeholders. It can use **Mendelow's Matrix** to identify key shareholders in terms of power and interest of stakeholders. A stakeholders group with higher power and high interest (say a trade union) must be kept satisfied.

The main stakeholders of a company are :

- Investors – They want return on investment.
- Customers – They want good quality products at reasonable prices.
- Suppliers – They want better price for procurements or services given.
- Government – They want revenues and development.
- Society at large – They want employment opportunities.

After identification of the stakeholders, the company must identify the requirement of each of the stakeholder group. What must the company do to ensure stakeholder satisfaction?

Audio Tech has to ensure that it improves employee satisfaction in order to reduce its employee turnover. It should also address the issues faced by truck drivers and involve them in a dialogue. If they are not satisfied, the company might suffer financially in the longer run.

Performance Measures : Employee turnover ratio, average employment duration of employees, number of strikes by truck drivers etc.

Stakeholder Contribution

"What the organization expect the stakeholders to contribute and deliver?"

In the second facet, the company has to identify the contribution required from each stakeholder group and must define ways to measure contribution of stakeholders. In turn the company will have something to offer the stakeholders. This is the "Quid Pro Quo" relationship. For example, Audio Tech provides quality products to its customers. The customers in turn contribute towards the profits of the company, they pay a price for the value Audio Tech offers.

Audio Tech should provide for better working conditions to its employees. Motivated employees will perform better and remain loyal to the company. They would drive the growth of the company. Similarly, dialogue with truck drivers would be needed to provide better pay, retirement benefits and good working conditions. Truck drivers in turn need to ensure timely and safe delivery of goods to retail outlets.

Performance Measures : Efficiency of employees, productivity, on time delivery by truck drivers.

Strategies

"What strategies should an organization adopt that derives stakeholder contribution while reciprocating by ensuring their satisfaction?"

The organization should identify strategies that ensures that:

- The wants and needs of the stakeholders are satisfied.
- Stakeholders contribute to the organization's objectives.

Performance measures must be put in place to confirm that the strategies are working. Effective implementation depends on appropriate communication of strategies, implementation by managers and continuous evaluation of appropriateness of strategies.

Audio Tech has to roll out strategies to retain employees by means of better pay, working conditions and growth opportunities within the company. The strategy will be effective when the employee turnover is reduced following these initiatives. Similarly, the issues faced by truck drivers need to be addressed by taking appropriate strategic decisions. The absence of strikes will indicate that these decisions have been effective.

Performance Measures : Employee turnover after implementation of new strategy efficiency of deliveries after issues with truck drivers have been resolved.

Processes

"What are the necessary processes to satisfy the above strategies?"

Processes ensure successful implementation of strategies. Each process could have sub-process. Process owners have to be identified to assign responsibility of functioning of the process.

Processes require continuous evaluation. Instead of evaluating all at once, the company has to identify important processes that are critical to the business. Porter's Value Chain Analysis can be used to identify and evaluate various processes in the organization.

Audio Tech should have well defined processes to hire appropriately skilled personnel for the job, transparent pay structure etc, This process may be owned by the Human Resource Manager. The working condition of truck drivers can be improved by providing sufficient training and better working conditions.

Performance Measures : Number of personnel hired at various skill levels, average payout for each of these skilled groups, hours of employee training, maintenance log of trucks etc.

Capabilities

"What resources should an organization need to effectively operate these processes?"

The company must have the right capabilities in order to support the process. Capabilities could include resources, technology and infrastructure for a particular process to work.

Audio Tech may decide to increase pay/salaries, however it should have sufficient financial resources to make these payments.

Performance Measures : Amount spent on new recruitments and training etc.

Conclusion

"Manage these interlinked facets to cater to all stakeholders"

While meeting targets as defined by performance measures should be emphasized, the performance measurement system should be dynamic and flexible to allow the stakeholders to voice their opinions and expectations as well. Taking their requirements into consideration, along with managing capabilities and processes, Audio Tech can implement effective strategies that will cater to the needs of all stakeholders.

Question 7 : [Nov. 2019 Exam]

Cure Hospital is running under private-public-partnership (PPP) model-providing treatment for non-communicable diseases. ABCO Hospitals Limited is the private partner which runs a chain of hospitals on profit basis in major cities in India. The public partner is the State Government. Cure Hospital is a "not-for-profit" hospital.

Private partner is to invest in upgrading and equipping the facility and responsible for operational management and service delivery. Government to provide physical space and other infrastructure in "as is where is" condition, provide support facilities and hospital amenities. Private partner assumes the entire responsibility for a full range of investment, operation and maintenance functions. Private partner has the authority to make daily management decisions.

The hospital is funded to a great extent by the State Government and a fixed level of funding is received from the government each year out of the State budgetary allocation. It is up to the hospital to allocate this fund to different areas such as doctors' and other staff salaries, medicines and all other costs required to run a hospital.

Cure Hospital's objectives are :

- to give prompt access to high quality medical treatment for patients.
- to provide free treatment to poor patients in line with government policy of inclusive development.
- to provide value for money for the taxpayer-measured by 3 Es framework of Economy, Efficiency and Effectiveness.
- to contribute to medical science by developing innovative ways to deliver treatment to patients.

Except select surgeries, all services are free for poor patients that are below poverty line (BPL) card holders. 40% beds are reserved for poor patients. Free out patient department (OPD) services to poor. CT Scan and MRI diagnostics are free for poor patients, subsidised rates for others. Cure Hospital also runs a generic medicine shop inside the hospital premises which sells medicines to all patients at discount ranging from 40% to 56% - the only shop of this kind in the city.

WHO has agreed to provide financial and technical support to the neonatal care unit. The hospital enabled it to obtain five accreditation certificates from various leading authorities on different aspects of hospital management.

Feedback is taken from each in-patient about the quality of service provided by the hospital and the satisfaction level is taken in 1 to 10 point scale. 1 being the least satisfied and 10 represents totally satisfied.

In a recent meeting of the managing committee of the hospital, discussions were held about inadequate performance measurement systems in place to assess whether the hospital is achieving its objectives and that insufficient attention is given to the importance of non-financial performance indicators.

A four member team consisting of a performance management expert and three senior doctors was created to give their advice in these aspects.

The four member team met with doctors, staff and other stakeholders at length and breadth. Some of the conversations were as below :

Doctor A : I think the hospital always delivers value for money. We have always achieved our total financial budgets.

Doctor B : We work here much longer hours than doctors in other hospitals, often without being paid for working overtime.

Doctor C : There is not enough government and private partner funding to recruit more doctors and paramedic staff.

Doctor D : Number of out-patients has increased considerably. Earlier an out-patient had to wait for an average period of 2 hours 20 minutes and now the same has increased to 3 hours.

Senior Doctor K : I do not know how much time we spend developing innovative ways to deliver treatment to patients though, as most of the performance data we doctors receive relates to financial targets.

In-patient H : Incompetent paramedic staff, poor quality of food and bed linen.

Staff M : Management undermines our role in running the hospital.

Recent performance data of the hospital vis-a-vis national average are as follows :

Particulars	**Cure Hospital**	**National average of other PPP run hospitals**
Number of doctors	80	76
Average doctors' salaries per month including overtime	₹ 1,20,000	₹ 1,60,000
Average doctors' salaries including overtime as per budget	₹ 1,20,000	₹ 1,25,000
Number of in-patients treated	8,360	6,369
Average satisfaction rating of in-patients	6	9
Number of patients readmitted for treatment of the same ailment within short period of time after discharge from the hospital	627	128
Average staff satisfaction rating (0% represents totally dissatisfied and 100% represents totally satisfied)	16%	86%
Number of out-patients treated	76,212	63,318

Required :

(a) Explain why non-financial performance indicators are particularly important to measure the performance of "not-for-profit" organisations such as Cure Hospitals. [4 Marks]

(b) Evaluate whether Cure Hospital is delivering value for money for each of the components of the value for money framework. [12 Marks]

(c) The CEO of the hospital intends to introduce a nominal fee for out-patient treatment given to poor patients and remove subsidised rate of CT Scan and MRI diagnostic for other patients in order to achieve its objectives in a better way. Evaluate the proposal of the CEO. [4 Marks]

Answer 7 :

(a) Cure Hospital has been formed in a public-private partnership to provide quality healthcare to the public, with focus on the poorer sections of the society. Healthcare service is provided for free, except for select surgeries. A sufficient portion of its capacity (hospital beds) is reserved entirely for Below Poverty Line (BPL) patients. Generic medicines are provided at a discounted price, to make them more affordable. World Health Organization (WHO) has decided to fund its neo-natal unit. With all this information, it can be summarized that Cure Hospital has been formed "not-for-profit" objective, attending to a social cause of providing quality healthcare to the economically poorer sections of the society.

Cure Hospital has been formed in partnership with ABCO Hospitals Ltd. and the State Government. The State Government has provided physical space, infrastructure, other support facilities and hospital amenities. ABCO Hospital, the private partner has the entire responsibility of taking care of allocation of funds, investment, operations, and maintenance functions. Daily management decisions are also handled by the private partner.

Since the Government has provided substantial funding and facilities to Cure Hospital, it owes a fiduciary responsibility of reporting the financial measures to its stakeholders, the government in this case. At the same time, financial measures alone are not enough to assess the performance of not-for-profit organizations. Due to its objective of public service, measurement of appropriate non-financial metrics are equally important. The reasons are :

(i) **Benefits cannot be quantified :** Cure Hospital essentially provides public healthcare service to the economically weaker sections of the society. Due to political, legal, and social reasons, not-for-profit organizations like Cure Hospital cannot be shut down merely for not being economically / financially viable. Therefore, financial measures are less relevant. Due to its non-financial objective, appropriate non-financial measures become more important. For example, the benefits of saving lives cannot be quantified in financial terms.

(ii) **Benefits may accrue over long term:** The expenditure incurred in one year may yield benefits over several years. For example, the investment in an Intensive Care Unit (ICU) facility may accrue of multiple years. Neonatal care unit have been given financial and technical support from WHO which will give long term benefits to hospital.

(iii) **Measurement of utilization of funds and expenditure:** In the case of Cure Hospitals, many hospital services are free, allocation of capacity is aimed at providing free service to the BPL section of the society, medicines are provided at discounted rates. Therefore, Cure Hospital does not have a substantial revenue stream to earn from its patients. It gets a fixed budget allocation from the State Government, while ADCO Hospital allocates these funds for various investments and expenditures. The assessment whether the spending have been appropriate is a key challenge. Defining cost per unit would be subjective since it could be cost of patients arriving at the hospital or cost of patients successfully treated at the hospital. Either figure could be tweaked to make it seem that the objectives are being met. The management may resort to rampant spending simply to meet the expenditure targets. Therefore, non-financial measure need to be put in place help stakeholders scrutinize whether the objectives for which funds have been given are being met.

(iv) **Multiple objectives:** Not-for-profit organizations have multiple objectives. It may be unclear which are the most important. Cure Hospital aims at providing high quality treatment to its patients while also developing innovative ways to deliver

treatment to its patients. Both objectives are equally important and inter-related. Non-financial measures provide better information about how each of these objectives have been met.

The benefits of organizations like Cure Hospital are non-financial in nature. Except for providing fiduciary information to the stakeholders, all other objectives of Cure Hospital can be measure only using non-financial measures.

(b) Value for money for Cure Hospital would comprise of the 3Es: Economy, Efficiency and Effectiveness.

(i) Economy: Has the desired output (and quality of service) been achieved at the lowest cost?

The medical resource at Cure Hospital in terms of doctors is 80, higher than the national average of 76 at other centers. Doctor's salaries would be a significant expenditure for Cure Hospital. The average doctor's salary at Cure Hospital (including overtime) is ₹ 120,000 per month, this is within the budget figure as pointed out by Doctor A. The salary is lower than the national average at other PPP run hospitals, where doctors earn ₹ 160,000 per month. Therefore, economy of money is being achieved at Cure Hospital.

The relatively lower levels of salary could be due to differences in levels of experience or that the doctors at Cure Hospital work overtime without getting paid (as pointed out by Doctor B). This may be one of the reasons why staff satisfaction is only 16% compared to 86% in other centers.

(ii) Efficiency: Has maximum output been achieved with the minimum resources?

Treating patients is the key objective of Cure Hospitals, while doctors are the main resource to deliver it. The number of patients treated per year is a good measure of efficiency achieved.

Cure Hospital treats 84,572 patients (in house patient 8,360 + outpatient 76,212) while the national average at other centers is only 69,687 (in house patient 6,369 + outpatient 63,318). Cure Hospital has 80 doctors as compared to 76 national average. Therefore, each doctor at Cure Hospital treats 1,057 patients (84,572 patients / 80 doctors) as compared to 917 patients (69,687 patients / 67 doctors) at other centers. Resource utilization of its pool of doctors is higher in Cure Hospital.

Doctor C mentions that there is not enough funding to hire more doctors and paramedic staff. Therefore, there is a constraint on the limited resources of doctors and support staff. This might be the reason, why each doctor at Cure Hospital works longer than colleagues at other centers.

Therefore, while efficiency in terms of number of patients treated by each doctor is high, there are other *hidden costs* that need to be taken into account. Few such costs could be low employee morale, higher waiting time of patients to receive treatment. This impacts the effectiveness of service provided.

(iii) Effectiveness: Has Cure Hospital achieved its mission or objective?

Cure Hospital has the objective of providing high quality medical service to its patients. Better quality of treatment would ensure that re-admission for treatment of the same ailment within a short span of time would be minimal. Number of such re-admitted patients in much higher at 627 at Cure Hospital as compared to 128 at other centers. Assuming all such re-admissions to be in-house patients, this return of patients for medical care for the same ailment within a short span of time is 7.50% compared to the national average of 2.01%.

Prompt medical treatment can also be questioned since the waiting time of patients to receive treatment has increased from 2 hours 20 minutes to 3 hours.

Senior Doctor K points out the time spent on delivering innovative care to patients may be limited due to financial constraints and overwork staff.

All this would have resulted in dissatisfaction among patients, whose survey indicates a score of 6 against a national average of 9. This shows that objective of Cure Hospital is not being met effectively.

To summarize, Cure Hospital is achieving economy by maintaining lower salaries for doctors. Out-reach to patients is also high as compared to national average. However, due to limited availability of resources, doctors and staff are overworked. While it does well on the efficiency aspect, it comes with a hidden cost in terms of dissatisfaction among patients and employees and low quality of medical care. Therefore, medical treatment is not effective, which is an important aspect in the value for money framework.

(c) Proposal to introduce nominal fee for out-patient treatment given to poor people and remove subsidized rate of CT scan and MRI for other patients.

Cure Hospital is a not-for-profit organization that aims at providing quality health care to the economically weaker sections of the society. It gets its primary funding from the State Government. It does not generate and is not aimed at generating substantial revenue from its patients. The CEO has proposed to introduce nominal fee for out-patient treatment given to poor people and remove subsidized rate of CT scan and MRI for other patients. However, this would not help Cure Hospital achieve its objective.

The given problem seems to suggest severe constraint in the resources available to meet its objectives thus impacting effectiveness of treatment. Each doctor treats 1,057 patients in a month as compared to the national average of 917 in a month. Number of patients, especially the out-patients is much more than national average. Overworked doctors combined with limited staff resources is the main hurdle that Cure Hospital faces in effectively achieving its objectives.

Cure Hospital is a not-for-profit organization. Therefore, generating nominal fees to achieve its objectives would not help its purpose. Instead, it can apply for higher budget allocation from the government. This can help it procure good quality resources such as experienced doctors by paying them higher salaries including overtime. Better qualified doctors can help provide not just better treatment but also innovative ways of treatment to patients. Improved / enhanced facilities could reduce the waiting time for medical care, enabling prompt medical service.

Improved service would result in better treatment, lowering the cases for re-admissions for same ailment within a short span of time. This improves the effectiveness of medical care provided at Cure Hospital. Better service would improve patient satisfaction. Quality medical care would provide a better case for Cure Hospital to sustain its operations in the long- run. The State Government may also more favourably consider any justifiable future budgetary increments.

Overall, the management of the hospital seems to be indifferent to the opinions and needs of the staff. The CEO's decision has a very short term outlook that does not co-relate with the organization's objectives. By trying to off-set a limited revenue stream to achieve its objectives shows that the management's style of working needs improvement.

Question 8 : [Nov. 2019 Exam]

AKG Limited has three autonomous divisions. The divisions are evaluated on the basis of ROI, with year end bonus given to divisional managers who have the highest ROI. Operating results of Division II for the last year are given below :

	₹
Sales	2,10,00,000
Less : Variable Expenses	1,26,00,000
Contribution margin	84,00,000
Less : Fixed Expenses	67,20,000
Net Operating Income	16,80,000
Divisional operating assets	52,50,000

The company's overall ROI for the last year was 18% (considering all divisions). Division II has an opportunity to add a new product line that would require an investment of ₹ 30,00,000. Other details of the new product line are as follows :

Sales	₹ 90,00,000 per annum
Variable Expenses	65% of sales
Fixed Expenses	₹ 25,20,000 per annum
Life cycle of the product line	5 years

Though Division II is performing well, but many a times, the customers complained that they had to wait for long after placing the orders. The company is interested in cutting the amount of time between when a customer places an order and when the order is completed. For the last year, the following data were reported in respect of Division II.

Inspection time	= 0.5 days per batch
Process time	= 2.8 days per batch
Wait time	= 16.0 days per batch
Queue time	= 4.0 days per batch
Move time	= 0.7 days per batch

In addition to financial performance measures, the company wishes to introduce a variety of non-financial performance measures.
The company has set aggressive targets in both sales growth and ROI for the coming year. The company's strategy for achieving these goals includes a campaign aimed at building brand recognition, customer retention, improvement in product quality, on time delivery to customers, expansion of eco-friendly product line and introduction of limited edition items.

Required :

(a) (i) Calculate last year's ROI of Division II [1 Mark]

(ii) Discuss whether the manager of Division II would accept or reject the new product line, if he takes his decision based solely on divisional ROI. [2 Marks]

(iii) Advise how residual income approach can be used as an alternative financial measure for evaluation of managerial performance in the best interest of the company. [2 Marks]

(iv) Calculate Manufacturing Cycle Efficiency (MCE) and interpret the result. [3 Marks]

(v) State what percentage of the production time is spent in non-value added activities. [1 Mark]

(vi) Calculate the delivery cycle time. [1 Mark]

(vii) Calculate the new MCE if by using Lean Production all queue time can be eliminated. [2 Marks]

(b) Based on the above information and using a Strategy Map tabulate two objectives and two measures for each perspective across the four dimensions of a balanced scorecard in the following format : [8 Marks]

Perspective	Strategic Objective	Measure

Answer 8 :

(a) (i) Calculation of last year ROI of Division II

= Controllable Profit / Controllable Net Asset

= ₹ 16,80,000 / ₹ 52,50,000

= **32%**

(ii) Calculation of ROI of New Product Line

Particulars	**Amount (₹)**
Sales	90,00,000
Less: Variable Cost	58,50,000
Controllable Contribution	31,50,000
Less: Fixed Cost	25,20,000
Controllable Profit	6,30,000
Investment Available	30,00,000
Return on the Proposed Line (ROI)	21%

The manager of Division II would be unwilling to invest the additional ₹30 lacs because this would decrease the Division II's ROI from 32% to 28%.

[(₹16,80,000 + ₹6,30,000) / (₹52,50,000 + ₹30,00,000)]

(iii) Generally, a manager who is evaluated based on ROI will reject any project whose rate of return is below the Division's current ROI even if the rate of return of the project is above the company's minimum required rate of return. In contrast, managers who are evaluated using residual income will pursue any project whose rate of return is above the minimum required rate of return, because it will increase their residual income. So, in the best interest of the company as a whole, residual income approach can be used for evaluation of managerial performance.

For the investment decision for Divisions II, the residual income calculations are as follows:

Proposed Investment	₹ 30,00,000
Controllable Profit	₹6,30,000
Less : Cost of Capital (18% x 30,00,000)	₹5,40,000
Residual Income(RI)	90,000

Advise : Residual Income is more likely to make correct investment decisions, and so is probably a 'safer' basis than ROI on which to measure performance.

(iv) Manufacturing Cycle Efficiency (MCE)

$$= \frac{\text{Processing Time}}{\text{Inspection Time + Process Time + Queue Time + Move Time + Wait Time}}$$

$$= \frac{2.8 \text{ days}}{0.5 \text{ days} + 2.8 \text{ days} + 4.0 \text{ days} + 0.7 \text{ days} + 16.0 \text{ days}}$$

$$= 11.67\%$$

Interpretation : In AKG, the MCE is 11.67%, which means that 88.33% of the time a unit is in process is spent on the activities that do not add value to the product. Monitoring the MCE helps companies to reduce non-value added activities and thus get products into the hands of customers more quickly and at a lower cost.

(v) Percentage of Time Spent on Non-Value Added Activities

= 100% - 11.67%

= 88.33%

(vi) Delivery Cycle Time

i.e. total time required to give delivery to the customer

= 0.5 days + 2.8 days + 4.0 days + 0.7 days + 16 days

= 24 days

(vii) Revised MCE

$$= \frac{2.8 \text{ days}}{0.5 \text{ days} + 2.8 \text{ days} + 0 \text{ days} + 0.7 \text{ days} + 16 \text{ days}}$$

= 14%

Alternate view on Revised MCE

If we assume that wait time of 16 days is also removed by lean production system, then the calculation shall be as follows :

$$= \frac{2.8 \text{ days}}{0.5 \text{ days} + 2.8 \text{ days} + 0.7 \text{ days}}$$

= 70%

(b) Balanced Score Card :

Perspective	Strategic Objective	Measure
Financial	▪ Improve ROI ▪ Increase Sales	▪ % increase in ROI ▪ % increase in sales
Customer Perspective	▪ Improve brand recognition ▪ Customer retention	▪ % of target audience who recognize brand ▪ % of suggestions/ complaints responded ▪ % increase in repeat customers/ Number of repeat customers
Internal Perspective	▪ Improve in product quality ▪ Improve on time delivery to customers ▪ Reduction in time spent in non-value added activities	▪ % reduction in defect rate ▪ % of orders on time ▪ % increase in MCE
Learning & Innovation	▪ Expansionof eco-friendly product line ▪ Introduction of limited edition items	▪ No of eco-friendly products developed. ▪ No of limited editions introduced.

Note : Any logically correct answer is valid in the above case.

Question No. 9 : [Nov. 2019 Exam]

The President of Automation Limited, a 150 persons engineering company, decided it was time to fire the company's biggest client. Although the client provided close to 60% of the company's annual revenue, Automation Limited decided that dropping this client was necessary. The client was profitable.

The President of Automation Limited stated "We cannot be a great place to work without employees, and this client was bullying my employees. Its demands for turnaround were impossible to meet even with people working seven days a week. No client is worth losing my valued employees".

The initial impact on revenues was significant. However, Automation Limited was able to cut costs and obtain new customers to fill the void. Moreover, the dropped client later gave Automation Limited two projects on more equitable terms.

Required :

(i) Discuss the reasons behind dropping of a profitable client by Automation Limited. [2 Marks]

(ii) State three qualitative factors that management should consider in outsourcing and make or buy decision. [3 Marks]

Solution 9 :

Decision Making – Automation Ltd.

(i) With increasing competition, 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 Automation Ltd.'s revenue has been making turnaround demands that are unreasonable for the company employees to meet. Automation 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 Automation's long term interests to protect its employees' rights (a non-financial consideration).

Keeping this approach in mind, Automation 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 Automation 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 Automation Ltd.'s long term sustainability.

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

(a) Quality of goods produced outside v/s 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 labour 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 favour 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.

Question 10 : [RTP – Nov. 2019]

Topic : Ethical and Non-Financial Considerations

Nutty Bites produces many edible snacks that are very popular especially among children. Peanuts, Peanut oil are essential ingredients in many of its products. They are currently facing this ethical issue –

"Medical studies have indicated peanut allergic reactions are on the rise. The prevalence is more profound among children. Reactions can range from hives around the mouth to potentially life threatening reactions when exposed even to the slightest trace of peanuts. There is growing media campaign to force companies like Nutty Bites to make disclosure about the presence of peanut on its package labelling."

Nutty Bites is a mid-size company that has a growing market. Risk to peanut exposure can come not just from the presence of peanuts in its products. Some of its bought-in ingredients (raw material input) are cooked in peanut oil. There are risks of "cross-contamination" amongst products. Let us say, an equipment has been used to produce cookies that has peanuts. Next, the equipment is used, without being cleaned, to produce chips that does not have peanuts as an ingredient. Some portion of the peanuts / peanut oil could contaminate that specific batch of chips produced. Since labels of chips would not mention "peanuts" as an ingredient, it poses a potential risk of causing allergic reaction to a customer unaware of this contamination.

Management of Nutty Bites has called for a meeting to discuss this issue. "The issue need not be addressed at all. After-all Nutty Bites is doing nothing against the law" is the opinion of many members on the board of the company.

Required :

(i) EXPLAIN why Nutty Bites should attempt to address this issue.
(ii) STATE potential benefits that business can garner by addressing this issue.
(iii) RECOMMEND, with reasons, the avenues available to Nutty Bites to address this ethical issue.
(iv) EVALUATE the recommend solutions.

Answer 10 :

(i) Modern organizations have a moral duty of care to a wider range of stakeholders not just owners / investors in this case. It owes a duty of care to anybody who consumes its products. The presence of peanuts or peanut oil makes it a potential "health hazard" to some consumers. Food safety is a fiduciary duty that Nutty Bites owes to the society. Corporate Social Responsibility (CSR) is the duty an organization has towards a wider community.

(ii) Addressing this ethical issue will help Nutty Bites to become a morally responsible organization. The long-term benefits to its business could be as follows:

(a) Avoid bad publicity that could potentially damage its reputation and brand image.

(b) Avoid potential legal action for tort, committing a civil wrong.

(c) Operating environment within the business is more ethical, giving a sense of well-being to its employees.

(iii) Following could be some of the responses that Nutty Bites could take to address the issue:

(a) A clear warning on the ingredients box that the factory uses peanuts while manufacturing some of its products. This should be included even in products that do not contain peanuts, to avoid any harm due to risk of cross-contamination. Customers who suffer this allergy, would then be aware of the potential risk of consuming products of Nutty Bites. Protection from potential lawsuits counters any loss of business for Nutty Bites.

(b) Segregate areas to have separate processing lines for products with peanuts / peanut oil and those without it. If possible, have segregated staff for the two production lines in order to avoid the risk of cross-contamination. If this is not possible, staff have to be well trained on the risk of cross-contamination. Gloves need to be provided while handling material during production of food products. This should be changed each time staff handle production changes from "peanut variety" to the "non-peanut variety".

(c) Equipment should be thoroughly cleaned while switching production from one variety to another. Fewer changeovers in the production cycle, that is producing products in larger batches, reduces the number of switches during production of different varieties of food products.

(d) Storage of peanut material should be well segregated and monitored to avoid contamination.

(e) If Nutty Bites has the resources, if could invest in pharma companies that are finding a medical solution to this problem. The food industry could benefit from research and development of treatments to address this life-threatening allergy. A break-through would address a societal problem, while also having a positive impact for growth of Nutty Bites.

(iv) Risk of product safety is an important issue that needs constant review. Review would be of the production process, storage, material handling as well as ingredient of purchased raw materials. The benefit of constant review is that Nutty Bites can immediately identify danger of contamination. For example, if a supplier of raw material changes the production of the ingredients to include peanut / peanut oil, then Nutty Bites can be immediately aware of the change due to its review process. In case of any future litigation, Nutty Bites could defend itself by proving that it had a robust review process in place.

On the other hand, constant review requires time and money, with an ever-present possibility of contamination. It is not feasible to ensure complete safety. Reviewers / quality inspectors could become negligent once the process is well established. This could lead to instances of contamination, even with a review process in place.

To conclude, Nutty Bites is morally responsible to spread awareness that some of its products may contain allergy causing peanuts/ peanut oil. It should streamline its storage and production process to avoid risk of cross-contamination.

Question 11 : [RTP – Nov. 2019]

Staywell Hotels was established 10 years ago as a budget hotel in the vicinity of Mumbai airport. It provides accommodation for cost-conscious travellers visiting the city for short stay lasting a day or two. Typically, a room would provide comfortable beds, high speed internet connection, air conditioning facility, coffee machine, fridge and free television service. Food service based on a limited menu is provided on the premises. It has few conference rooms that provide space for guests to hold business meetings. This saves them precious time otherwise wasted in travelling on congested city roads. The hotel provides free shuttle service to and from the airport at specific times during the entire day. Hotel's proximity to the airport, the free shuttle service and convenience of conducting work at the conference rooms have been marketed to attract guests to stay here. The guests also comprise of people who are in transit between airports. Also, when there are long-duration delays in flight operations due to which passengers need to be provided overnight accommodation, few airline operators host their guests here. Like all other guests, these airline operators are also interested in Staywell for its location and low-cost room rental.

Over the past decade, management of Staywell has ploughed in profits from this establishment to acquire similar properties in other major cities. They function based on business model similar to the original establishment in Mumbai. All of them are now functioning as well-established budget hotels near city airports for cost-conscious business travellers. In all, Staywell hotels have 18 properties spread over 15 cities. To keep its costs of operations within control, Staywell hotels has outsourced its cleaning and food service to specialized vendors. Cleaning service includes cleaning of kitchen crockery, bedding, laundry and housekeeping of premises. The entire set of activities related to preparation of food has been outsourced. Vendor service has been satisfactory, barring few instances where guests have complained of unhygienic rooms or non-palatable food service. However, due to high guest volume and quick turnover of guests due to short stay periods, this has never been a hindrance to business.

This business model has been profitable since its establishment. Staywell Hotels has a sizeable market share in this segment. Competition has increased in the recent past. Price wars have put pressure on profit margins in this segment. The management plans to continue to operate in this segment to maintain its market presence. At the same time, to sustain business in the long term, the management of Staywell Hotels now wants to foray into developing properties for luxury resorts. Target guest segment are vacationing tourists interested in an enjoying a laid-back time in scenic places. These guests would not mind paying premium for availing good quality service.

Required :

(i) IDENTIFY and EXPLAIN the various primary activities of Staywell in its value chain.

(ii) IDENTIFY and EXPLAIN the stage of product life-cycle.

(iii) EVALUATE the risks of outsourcing cleaning and food services for the luxury resort properties.

Answer 11 :

(i) The Five Primary Activities of Michael Porter's Value Chain Model are :

Inbound Logistics
Activities related to receiving, handling of materials from the supplier and their storage until further use later in operations. In the case of Staywell Hotels, materials would include food service received from the vendor. This needs to be stored and maintained properly until the items are ordered by the guest. Similarly, the vendor delivering freshly laundered crockery, bedding and laundry would be materials that need to be stored until their use to serve the guests. These are inbound logistics for the hotel.

Operations
Activities related to converting inputs into production of output or service. In the case of Staywell Hotels, operations would include maintenance of hotel premises including guest rooms, conference rooms and common area. Activities related to ensuring cleanliness and safety of room, working order of facilities offered like TV and internet service, coffee machines, shuttle service are part of hotels operations.

Outbound Logistics
Storage and movement of the end product from the production line to the customer. In the case of Staywell Hotels, it includes activities such as maintaining "non-smoking" rooms as such, so that when the customer finally uses it comes across as a "non-smoking" room. Likewise, the food should be prepared in a professional manner, stored in such a way that it ensures customer satisfaction and safety. Therefore, the review of food items to remove the ones past expiry would be part of Outbound Logistics. Therefore, any activity relating to making sure that the guests get what they have ordered for, would be part of outbound logistics.

Marketing and Sales
The activities related to communicating, selling, and delivering the product or service to the customer. In the case of Staywell Hotels, advertising its properties to the cost and time conscious traveller would be a marketing activity. Free shuttle service is a promotional activity to attract guests. Any agreement with airline companies to accommodate guests would also form part of this activity.

Service
All types of service such as after sales service, handling customer complaints, customer support, training etc. In the case of Staywell, service is one of the most important activities in their value chain model. Good service ensures happy guests. Therefore, all activities from front-desk, room service, catering, repair services, shuttle service would be included here. All employees have to trained to handle needs of the guests in an effective and efficient manner.

(ii) Product Life-cycle Stage of Staywell Hotels

"Budget Accommodation" to the cost and time conscious traveller is the current product offering of Staywell Hotels. Starting out with a single establishment, Staywell Hotels ploughed in profits to expand its business offering to other cities as well. The product has been well established in the past decade. Competition is intense indicating similar offering by rivals. Price wars have put pressure on profit margins. Staywell Hotels plans to continue in this segment due to its sizeable market share. This information indicates that Staywell Hotels is in the maturity stage of its product lifecycle. It has a well-established product, with a sizeable market share at the same time it is now facing competition. Business has hit a plateau. Hence, Staywell Hotels needs to improve its product offering to beat competition. The management plans to foray into luxury resort business is an indication of its future plans to sustain business.

(iii) Risks of Outsourcing Cleaning and Food Service under the Luxury Resort Model

Staywell Hotels is a budget accommodation provider to the cost and time conscious traveller. Primary feature of this model is "value for money". To remain profitable the cleaning and food service has been outsourced, which enables Staywell Hotels to keep the costs of operation low. There have been instances of dissatisfaction among guests as regards quality of cleaning and food service. However, since the turnover of guests is quick due to high volume and short stay period, it has not negatively impacted business.

In the luxury resort business, the target guests are travellers on leisure. The primary feature of this model would be "good quality of service". Maintaining cleanliness of premises and food service are critical activities in the operation of luxury hotels. Therefore, customer satisfaction on these metrics is paramount to sustain and grow business. With the ability to post reviews online on booking portals, any negative review (whether justified or not) can reach very easily to a large number of potential guests. This can negatively impact future business. Hence, Staywell Hotels has to ensure that the quality of service that it provides in terms of cleanliness and food should meet and beat the guest's expectation.

Outsourcing these services to well established vendors is advantageous since the focus can remain on improving guest experience. It may also be cost advantageous in many cases. However, there are number of risks in this model. Detailed service level agreements need to be drawn up to ensure that the required quality of service is being provided. Staywell Hotels should be able to monitor the performance of these vendors. In cases of non-delivery of the required level of service, the agreement should provide for means of redressal. This could vary from compensation for any loss in business to immediate termination of service. Staywell Hotels should ensure that it can easily and economically switch service providers if required. For this it has to identify alternate vendors who can provide the same level of service as the current ones. The other risk in outsourcing could be of instances where well performing vendors could go bankrupt and shut shop. In such cases, Staywell Hotel's operations could be immediately impacted since such services can no longer be availed from these vendors. Again, list of alternate service providers is a necessary back-up that the hotel should have.

Alternatively, since these are very critical activities to business operations, Staywell Hotels may choose to have complete control over them. This can be achieved by having in-house departments that cater to cleanliness and food service. Control over factors such as input material used, the performance of service, equipment used, training of staff and other essential activities can ensure that the required service quality can be achieved. Better service enhances guest experience. Compared to outsourcing, this might be a costlier option. However, since the guests are ready to pay a premium for service quality, within reasonable limits cost need not be a primary concern for Staywell Hotels for this business model.

Question 12 : [RTP - May 2020]

Topic : Gain Sharing Arrangements

Raya Health Care Limited is a leading healthcare service provider in Mumbai, it has approximately 450 potential beds, it provides diagnostic and day care speciality facilities also. In diagnostic centres they are using traditional devices for CT Scan and MRI which are not enough as per demand. Patients waited more than weeks for CT and MRI scans, this problem can cause delay in diagnosing illness; waste of time and other resources; not just in radiology but throughout the healthcare system.

Raya has planned to outsource CT scan and MRI services to Livlife, which has world class international chain of diagnostic centre. Livlife promise to provide radiologist report within 24 hours. However, finance manager of Raya doubt that it will not be a profitable arrangement. For the satisfaction of Raya, Livlife has entered an agreement to provide its services to Raya with no guarantee of receiving payment. Raya agrees to the following conditions:

- Cost savings generated in first year, the same will be retained by Livlife.
- Cost savings generated in second and third year will be shared between Raya and Livlife at a ratio of 30% : 70%.
- Cost savings generated in the fourth year will be passed to Raya.
- Any cost savings generated by an idea proposed exclusively by Raya that doesnot require capital investment by Livlife will be immediately passed along to Raya.

Required :

DISCUSS the agreement between Raya and Livlife.

Answer 12 :

The agreement between Raya and Livlife is Gain Sharing Arrangement. Gain sharing (also known as cost saving sharing) arrangement is an approach to the review and adjustment of an existing contract, or series of contracts, where the adjustment provides benefits to both parties. A fundamental form of gain-sharing is where a supplier agrees to perform its side of the contract with no guarantee of receiving a payment. Instead, any payment received is based upon the benefits that emerge to the customer as a result of the successful completion of the supplier's side of the bargain.

Livlife and Raya has also entered into such arrangement. This is clearly a risky stance for the supplier i.e. Livlife, because it could spend a fortune and walk away with nothing.

Alternatively, if the benefits to Raya are substantial, Livlife could find itself rewarded with a large return. Cost savings might be attained from reducing the cost of supplies, implementing new skill and technologies, revised delivery time, improvements in operations etc.

The gain, benefit, or advantage to be shared is not necessarily financial, although financial benefits are expected to occur frequently. The Raya, for instance, will not necessarily take cost savings in the form of a lower contract value but might require a higher specification for medical treatment. However, to assess any financial benefit, both parties have to provide each other with access to relevant cost numbers to determine the basis for the assessment of the benefit and the calculation and sharing of the benefit.

Many contracts involving these arrangements have emphasis on greater openness and shared development and improvement. In the given case gain-sharing deals are, on the face of it, a win-win situation for both Raya and Livlife, interest of both are aligned.

Livlife is trying to save costs of Raya while Raya is trying to get world class services.

Question 13 : [RTP May 2020]

Spicy is one of the top Engineering coaching institute, it operates a chain of 157 centres across the country of Mayaland. Spicy is equipped with the team of top most faculties for preparation of JEE who are known for giving best results year after year.

Students willing to join Spicy have to appear for admission test/(s). These tests help the students in understanding their potential and also provide them with the opportunity for scholarships that help them rewards academically and monetarily. In addition, Spicy provides comfortable class rooms, libraries, and ambience for overall development of students. Spicy delivers quality coaching for JEE by providing innovative ways and therefore prepares students for all challenges. Spicy prides itself on their results and level of educational service it offers to its students.

It has previously been successful in attracting students across the nation. However, in recent years, the number of enrolment of students has started to decline as a result of introduction of online platform. Several recent surveys have painted a disappointing picture for market conditions in 2020. A survey by the "My Education Outlook" over the month to 31st December found that only one in five respondents believes their business will be better off in 2020 compared with 2019. Spicy has a policy to set the standard fees based on the location of a particular coaching centre. It also takes into account fees charged by the competitors. However, the institute's managers have the right to offer discount to underprivileged students or scholarship to merit students, and to reduce fees structure when student hiring ratio (SHR) in their class rooms are expected to be low. The average standard fees per student, across all the centers of institute, was M$ 15,000 in 2019, compared to M$ 12,000 in 2018.

Spicy also generates revenue from the additional services available to students, such as selling books, providing test series etc. The series of periodic tests are identical to the pattern of various competitive engineering examinations and give sufficient practice to the aspirants for the same. Every test attempted by the students gives them a clear idea of their understanding of the concept, timeliness, strengths, weaknesses, and ranking amongst the aspirants across Mayaland.

Summary from Spicy's Management Accounts

Particulars	Year ended 31 Dec. 2019 M$'000	Year ended 31 Dec. 2018 M$'000
Gross Fees	1,11,980	1,05,977
Less: Fees Discount / Scholarship	(18,783)	(13,900)
Net Fees	93,197	92,077
Add: Other Revenue (selling books, tests etc.)	27,250	25,895
Total Revenue	120,447	117,972
Less: Operating Costs	(97,685)	(93,758)
Operating Profit	22,762	24,214
Other Performance Information :	Year ended 31 Dec. 2019	Year ended 31 Dec. 2018
Capital Employed	M$ 3,77,50,000	M$ 3,77,10,000
Average SHR	78%	73%
Average SSR (Students Satisfaction Rating)	8	9.5

At the end of the course, or at the end of the unit within the course, students are asked to complete a questionnaire rating based on a scale of 1–10 where '10' represents 'Excellent' with various aspects of course, for example, the knowledge level of faculty, the quality of support material, and the approachability of faculty to ask them questions.

Two issues are becoming increasingly frequent in the students' comments alongside the scores:

- Students complaint that faculties in the institute were full of attitude not taking the doubts of students, instead of encouraging students to solve their doubts in the class, they insulted the students who raise their doubt during class. So, their standard of education has not been as good as in previous sessions.
- Students in classes need special individual attention, there is need of smart classes, doubt solving sessions etc. to improve the result of students.

Spicy had planned to start a remedial programme for average students for all the centres at the beginning of 2018. However, this programme has been put on hold to reduce expenditure.

Required :

ANALYZE Spicy's performance for the year ended 31 December 2019.

Answer 13 :

Performance of Spice for the year ended 31st March 2019 :

Revenue

Gross Fees of Spicy has increased by 5.66% in 2019, which reflects the higher SHR (78% vs. 73%) and the increase in average standard fees per student (M$ 15,000 vs. M$ 12,000 per student). However, this information is not enough to conclude how well institute have performed in the year to 2019.

Net Fees has only increased 1.22%, this reflects the significant 35.13% increase in the discounts or scholarships offered.

It is observed that even though % change in the SHR is +6.85% (from the budgeted level of 73% to 78%), revenue from fees, net of discount / scholarship, only increased by 1.22%. This means that average fees collection per student in 2019 was lower than in 2018, despite the higher average standard rate (M$15,000 vs. M$12,000).

It is also important to mention that in tough market conditions, managers have managed SHR, higher than budgeted figure by offering/ awarding the discount or scholarship.

With the increase in SHR, one of the best possible benefit is that, even if students are paying less fees, they will generate additional revenue from sale of books and test series. For example, in the given case additional revenue has increased by approximately 5.23% from M$ 25,895 to M$ 27,250.

In total, revenue has increased 2.1% in 2019 v/s 2018.

Overall, given the tough market conditions, any increase in revenues can be viewed as positive, however, the revenue achieved from per student should be greater than the variable cost of providing it.

Operating Profit

Notwithstanding the increase in revenue, operating profits have fallen by M$ 14,52,000 (6.00%) between 2019 and 2018, due to a sizeable increase in operating costs. There is no detail about Spicy's operating costs, for example, the split between fixed and variable costs. However, in tough market conditions, cost control is likely to be very important. As such, increase in operating costs M$ 39,27,000 (4.19%) between 2018 and 2019 is potentially a cause for concern and the reasons for the increase should be investigated. However, when looking to reduce costs, it will be very important to do so in a way which does not compromise student's satisfaction. More generally, Spicy needs to avoid cutting expenditure in areas which will have a detrimental impact on student satisfaction ratings, for example, not providing enough time by faculty to students for doubt solving.

The increase in costs has also led to a fall in operating profit margin. The margin falls from 18.36% to 16.35%. This reduced profitability is also reflected in the institute's return on capital employed which has fallen slightly from 64.21% to 60.30%. This suggests that the value which Spicy is generating from its assets is falling.

Students Satisfaction Rate (SSR)

Although the reduction in profitability should be a concern for Spicy, the reduction in student satisfaction rate should potentially be seen as a greater cause for concern. The rating suggests that, in the space of one year, it has lost 1.5 points in the scale of 1-10, being the top Engineering Coaching Institute, Spicy cannot afford to lose the points. Spicy Institute pride itself on their results and level of educational service it offers to its students. Both factors are important considerations for students when considering whether or not to join Spicy Institute.

Therefore, Spicy needs to ensure that student satisfaction levels are maintained as high as possible and it is also important to know that how its students feel about the services it offers.

Moreover, the decision to defer the remedial programme is likely to have a detrimental impact on the future performance.

Question 14 : [ICAI Module]

Topic : PORTER'S FIVE FORCES & DIVISIONAL TRANSFER PRICING

In the 'Five Forces Model', one of the crux is that companies or divisions compete with their buyers and suppliers. The same model can be used to evaluate the competitive environment of the divisions of large, complex companies. In such companies, some of the divisions may be buyer and supplier to one another. This leads to management accountants becoming involved in negotiations leading to the agreement of suitable transfer prices between these divisions.

Required :

(i) EXPLAIN, how the forces applied in a relationship between supplier and buyer led Michael Porter to reach a conclusion that companies compete with their buyers and suppliers.

(ii) DISCUSS, the issues of negotiating and agreeing transfer prices between divisions within a large, complex organization. Make references to Michael Porter's model, and your arguments in part (i) where appropriate.

Solution 14 :

(i) Michael Porter concluded that companies or divisions compete with their buyers and suppliers because they exercise bargaining power over one another. The relative competitive advantage is determined by the degree of bargaining power of each of the parties. Porter viewed competition as activity that affects margins where buyers and suppliers struggle to steal margin from each other.

The competitive forces between buyer and supplier affect price and quality. A large order or **powerful buyer** will exercise force by trying to encourage the supplier to improve quality, either of the product or service being provided, or of the services supporting the product. As another option, a **powerful buyer** might be willing to accept the standard product, but demands a discount, thus increasing its own margin at the expense of the supplier.

Relative size of the parties also determines the bargaining power, or it also depend on the degree of reliance on one another. A large buyer or supplier, for whom the other party is a small or unimportant portion of business, is more likely to exercise power to get a "good deal". It is clear that a buyer placing a small order is in a worse position to ask for a discount than one placing a very large order. In the same way, if a buyer represents a major portion of turnover, a supplier will work hard to keep such a buyer happy, thus may increase the service package to support the product by incurring costs.

A buyer or supplier also has greater bargaining power if **switching costs** in doing business elsewhere is incurred by other party. This cost would, if incurred, reduce margins. This will lead to the party being less likely to break up the relationship with other party.

Some elements of the bargaining power are also determined by the **availability of alternative suppliers or buyers**. A large supplier will give no concessions to a very small buyer if it is confident that another buyer will be available to replace it. Similarly, a buyer looking for a very special material or service may find that it has no alternative than to accept the terms offered by a single supplier.

Thus, companies and divisions "compete" with their buyers and suppliers. However, this depends on how broad the definition of "competition" is. Michael Porter started from the premise of a very broad definition, consequently could prove his hypothesis.

(ii) In a large and complex company, divisions may have been developed or acquired along a supply chain. This means that, within the company, there are divisions that are buyers and suppliers for each other. The logic behind establishing this structure is that it reduces transaction costs, cuts out supplier margins and secures reliable supply of raw materials or components. In this situation, the company faces the risk of sacrificing any saving in transaction costs if management needed to invest considerable time in transfer pricing negotiation.

In effect, the divisions concerned will be competing with one another like buyer and supplier during the negotiation, in the same way as described in Part (i). The transfer price agreed will affect, to some extent, the profitability of each of the divisions. If bonuses are paid to managers as per divisional performance, the transfer price will determine the level of bonus paid. Thus, managers may have a personal interest in enduring negotiations that will destroy value in the company.

The parent company must determine whether the transfer price is in the best interests of the company. If it is, it should simply be imposed. This finish off competition but may discourage managers, especially when divisional bonuses are paid. In most companies, some level of negotiation is allowed, but this may be not realistic if transfer is necessary. In this case, the bargaining power of the supplier division is vastly increased, thus destroy the balance of the negotiation.

The opposite is the case if the supplier division is not allowed to make external sales, or if there is no external market (for example, for a special component). In this situation, the bargaining power clearly lies with the buyer division, as the supplier has no choice but to make the transfer.

However, if the special component or supply is not available from elsewhere, the bargaining power may shift to the supplier division as its product is of different nature.

The outcome of any transfer price negotiation must be ended in a transfer at a fair price. In this case, fair means that the price must be comprehended as fair by the division concerned. Any other outcome may lead to loss of motivation in one or both of the divisions. A fair price can be easily determined if there is a free market of the product, component or service being transferred (in other words, it can be both sold and bought outside). If this case does not exist, the range of transfer prices may fall between marginal cost of a unit and full cost plus normal margin.

In corporate terms, the most important transfer pricing issue is that while consolidating the accounts, the transfer price cease to exist. While consolidating the supplier and buyer division accounts, the revenue from the transfer price cancels out the cost of purchase, so the net result is that the transfer disappears. In entire development, most of time and efforts are wasted and simply rise in internal transaction costs. Accordingly, any competition between the divisions is worthless. If the management accountants comprehend this, and the relative bargaining power of the divisions concerned, it is possible to determine negotiations quickly, thus distorting as little value as possible.

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