PAPER – 5: STRATEGIC COST MANAGEMENT AND PERFORMANCE EVALUATION

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

Candidates are also required to answer any

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

Working notes should form part of the respective answers.

Question 1

Flex Fashions is an Indian retail clothing chain company. It specializes in designing and selling new fashion clothes and accessories. The primary factor in Flex's successful run is attributable to two simple business connotations compared to its peers:

(i) Management's Philosophy centers around preserving views like -

- *Failure to recognize our failures creates conditions for more failures.*
- *Lot of ideas will remain ideas unless you have a strong team.*
- *One satisfied customer brings in ten new customers with him whereas one dissatisfied customer takes away ten.*

(ii) Business Philosophy is centered on three basic aspects -

- *Flex Fashions supply chain is highly responsive and is central to its business success.*
- *It brings innovative and exclusive clothing and accessory designs every three weeks on an average, whereas its competitors change the designs every two or three months.*
- *It carries more than 10,000 distinct varieties of items per year in hundreds of its stores, compared to its competitors, who carry 2,000 to 3,000 items in their stores.*

Business Strategy

Flex Fashions core market is female oriented in the age group of 20 to 35 years. The company reaches out this market by opening their stores in town centers and places with high concentration of females in this age range.

Research for demand forecasting for clothing and other accessories and recent trends in the fashion industry are observed by visiting colleges, universities, health clubs, pubs, etc.in different cities. The research data is used to set the product demand levels in the different stores.

Reducing production activities (short production runs) to create scarcity of specific designs generates a sense of eagerness to buy, while supplies last. As a consequence, Flex Fashions does not have lots of excess inventory, nor does it need to bring big mark-downs on its clothing and accessory range. Hence, Flex Fashions has high inventory turnover ratio compared to its peers. But such short-term focused order cycles demand forecast requires to be much more accurate than its competitors and need reliable suppliers.

The company adopts a limited exchange/return policy whereby any customer, who is not happy with the product, whether it is found damaged or defective, needs a change in colour or design or for any other reason, is allowed to return the product within three days only. Even though it is less than the competitors' average of seven days, the company adopts this strict return policy to have clear control over its inventory management.

Customers visit the Flex Fashions stores twelve times in a year on an average compared to just three times in a year for its competitors. The state of art structure of Flex Fashions stores encourages customers to visit the stores instead of ordering on the internet. As a result, Flex Fashions sells 85 percent of items at full price compared to 65 percent of items at full price by its competitors. Further, the advantage of higher customer step-in's just leaves 8 to 9 percent of items unsold compared to the industry average of 15 to 20 percent. As the company is less tech savvy, the present business model even though it yields excellent results in the major cities is limiting the market in remote locations.

Flex's factories can quickly increase and decrease the production rates, so that there are fewer inventories in the supply chain and less requirement of the working capital. The company produces only 35 to 40 percent of their manufacturing in advance versus the 80 to 90 percent done by competitors. The company does not need to place big bets on yearly fashion trends. They can make many smaller bets on short term trends that are easier to predict. However, the reliability of suppliers is vital as any disruption would delink the supply chain.

The company's supply chain is fast moving, finely tuned and requires constant attention to keep it running smoothly. Supply chain planners and managers of the company are constantly watching customer demand and making adjustments to manufacturing and supply chain operations.

The founder of Flex Fashions, Mr. VK is aging and could foresee the need of management transfer to the next generation by the end of the decade. To facilitate smooth sailing, he wants to develop a second line to understand the complex business operations of the company. He believes that irrespective of too many successful milestones the company has passed, challenges always remain and the worst may hit any time. Success is not always guaranteed and failure could greet any time. He wanted to identify the talent and to bring suitable replacement, to keep the successful track of the company for further decades to come.

Presuming that you are one of the contenders to be his substitute, you are requested to analyse the situations given to you along with the existing policies, procedures and circumstances that the company is dealing with.

Required

(i) *The three management philosophies defined by Flex Fashions is no doubt essential for the success of any entity in general, but is there any specific philosophy that can be directly related to any one of the processes of Supply Chain Management? IDENTIFY and EXPLAIN the process.* ***(3 Marks)***

(ii) Apart from the above, DISCUSS the other seven processes that would fit in the supply chain management framework. ***(7 Marks)***

(iii) It appears that Flex Fashions evaluates the probable demand through analysing the customer behavioural thinking by visiting schools; colleges etc. and amend its supply chain. ADVISE on any factors that should be specifically looked during such analysis.

(2 Marks)

(iv) DESCRIBE the types of supply chain in the context of the company, citing the requirement of the separation of supply chain. ***(2 Marks)***

(v) Do you feel that all is well with Flex Fashions Supply Chain? EVALUATE three areas where risk mitigation is possible in near future. ***(3 Marks)***

(vi) Mr. VK used to convey on different forums and meetings of the company that "the blueprint of supply chain model used by our company is easy to imagine but difficult to practice." To use the methodology effectively, the incumbent must learn about the models and operating procedures used by the company for the last 30 years. Good supply chain models enable people to understand the potentials and see the opportunities that a real- time supply chain offers. EVALUATE the statement given by Mr. VK. ***(3 Marks)***

Answer

(i) The initial two points are general in nature and would support managerial decisions in a motivational way but the third point i.e., 'one satisfied customer brings in ten new customers whereas the dissatisfied one will take away ten' is relatable to **Customers Relationship Management** Process of SCM. It precisely directs us to find the needs of the customers and providing them with best possible situations.

Customer Relationship Management is to manage and analyse customer's interaction and data throughout the life cycle with the main motive of improving business relations, as well as the strategies and technologies used in Customer Relationship Management (CRM). Relation includes relations with customers, assisting in customer retention and driving sales growth. Customers information under different channels are compiled through CRM. The staff dealing with customers get a detailed information about customer's personal information, purchase history, buying preferences and concerns. Organizations must ensure customers are satisfied with their products and services for higher customer retention.

In the given case Flex fashions is having the practice of retaining the customers by observing the changes in customer's preference, habits and different dynamics by closely monitoring them on a periodic basis. This is one form of maintaining the customer relations by which their priorities are taken care off by analysing the social and fashion patterns. This allows the business to know more about target audiences and how best to cater for their needs.

(ii) The other seven processes that would fit in the supply chain management framework would be:

1. **Supplier Relationship Management:** It provides a structure as to how relationships with the supplies are developed and maintained. *From the facts of the case, it is observed that the company's products are highly contemporary, and all the products are subject to consistent revision and replacements. The inventory turnover also seems to be on higher side compared to the industry average. So, to prevent stock outs this process should be sensitively carried out.*

2. **Customer Service Management:** In general, this signifies the key points of contracts administering the products and service agreements. *Considering the nature of the business of the company, this is relatively less relevant but certain level of services like, exchange of clothes could be allowed to the customers for a limited period after sale, no dearth of sales personnel in show rooms less waiting time etc.* These sort of practices falls under Customer Service Management process.

3. **Demand Management:** It assists in providing the structure of optimizing the customer's requirement with supply chain capabilities. *All the parameters of Flex limited are well ahead of the industry average and it is being managed well. It appears that the company is having right processes in place the management is matching supply with the demand proactively and executing the plan with no disruptions.*

4. **Order fulfilment:** It generally includes all activities necessary to define customer requirements, design the logistics network and fill customer orders. *This would have negative bearing unless properly met. Flex Fashions is maintaining 10,000 distinct items per year in hundreds of its stores across the country compared to competitors that carries 2 to 3 thousand. So adequate stocks are being maintained towards demand and order fulfilment.*

5. **Manufacturing flow management:** Includes all activities necessary to move products through plants and obtain, implement and manage manufacturing flexibility in the supply chain. *The company is showing the ability to manage manufacturing resources to meet various customer fashions and requirements.*

6. **Product Development and commercialization:** It provides the structure for developing and bringing to market new products jointly with customers and suppliers. *This may be less relevant in the context of the company as it seems that the fashions and products are exclusively developed with the in-house study and research carried on its own*.

7. **Returns Management:** Includes all activities related to returns, reverse logistics, gatekeeping and avoidance. *The company is following a return policy of its own with an object to ensure full satisfaction with respect to the products it sold.*

(iii) Customer insight is the key to Flex Fashions business operations. Based on these insights innovative and exclusive clothing and accessory designs are developed every three weeks. Flex Fashions carries at least 10,000 variety of items per year.

Being such a critical process, key factors for analysis are as follows:

- Information flow collected from customers by visiting schools, colleges etc. has to be combined into a database. This information flow has to be *analysed daily* in order ***to quickly catch*** on to developing customer fashion preferences.
- *Flex Fashions should be able to obtain right insights, at the right time*. It should also be able get access to high quality information all through the year. In addition to customer facing sales staff, *the company may want to employ marketing professionals and trend analysts who can* ***understand and provide valuable customer insights.***
- Sales personnel, store managers and employees at the shop floor should be particularly trained to be able to listen, understand and note down customer needs and comments, be observant to new styles and trends. They are in the forefront of customer research, the ***driving force of its business operations***. Hence, *they should be well trained and highly skilled to be able to identify relevant, useful and potentially viable information that can be* ***quickly turned in a product*** *for Flex Fashions.*
- The ability to develop designs quickly and have the items produced immediately requires that product information should be **standardized**. *This means standard definitions for items used in the product, standard definitions for the products themselves etc. This allows for* ***quick and accurate design*** *with clear manufacturing instructions.*
- Moreover, management should also keep in mind the ***psychological needs social needs, esteem ego and self-fulfillment need*** *of existing and future customers*.

(iv) It is given in the case study, that Flex Fashions produces only 35% to 40% of its manufacturing in advance. This follows a ***push supply chain*** model which would be *ideal for products with standard designs based on more predictable demand patterns*.

Remaining production is for exclusive, innovative products it produces based on current customer preference. Customer insights form the basis of demand forecasting that in turn determines its production. The items are then produced on short notice and sent to stores for sale. These are the bets that the company takes on short term trends. These in a sense follow the ***pull system of supply chain***. The pull is based on *current customer trends and not necessarily based on an individual customer choice.*

These are the types of supply chains in the business model of Flex Fashions.

The push supply chain model follows predictable demand patterns and hence is made to stock. The pull model is based on current customer trends, where products are made only if there is a demand for it. Hence, the requirement of the ***separation of supply chain***.

(v) Areas of risk mitigation in supply chain of Flex Fashions

A highly responsive, agile, and flexible supply chain is central to the success of Flex Fashions success. The risks and possible areas for mitigation can be as follows:

- **Demand forecasting:** Demand forecasting should be highly accurate based on reliable and viable information and customer feedback. It is this information that forms the basis for production and therefore, revenue generation. There should be no redundancy in collection and communication of this information throughout the organization. If a trend is not caught on at the correct time, it is a lost opportunity for Flex Fashions. At the same time, if an item is produced based on customer research that is not entirely popular/ viable then it will result in unsold stock. Hence, ***constant oversight of demand forecasting systems and processes is vital*** to mitigate the risk of lost sales opportunities and data redundancy.

- **Short production runs:** Due to the nature of this business model, the production model has to be very flexible to cater to constant change in customer demands. Hence, Flex Fashions should have the ability to get access to sufficient raw material inventory on demand in order to cater to immediate production demands.

  One way of doing this is perhaps, to make bulk purchases of its standard raw material inputs from its suppliers and stock them in inventory to be made available on demand. Alternatively, ***appropriate arrangements can be made with suppliers to ensure seamless availability of raw material on demand.***

  It is given in the case study that supply chain managers and planners are constantly watching customer demand and making adjustments to manufacturing and supply chain operations. This is a process that is critical to ensure that there are no stock outs that can result in lost sale opportunities.

  Accurate demand forecasting and ability to maintain seamless short production runs is critical to maintain the brand image and future growth of Flex Fashions.

- **Digital presence:** Flex Fashions is not tech savvy. Its customer reach and thereby the yield in the major cities is excellent under the current model. However, it is unable to get similar results in remote locations.

  Customer choices in remote locations could be the gap in the market which competitors may identify and take advantage of. Hence, Flex Fashions should ***increase its presence either physically or through digital platforms*** (for example having a company website to take orders online and receive feedback) in remote locations. *For a company where the* ***customer is the co-designer of its products****, it needs to have a widespread presence in order to understand varying customer needs across different geographical locations.*

(vi) Flex Fashions is a highly ***customer-centric company***, where customer experience is one of its unique competencies. However, implementation of this strategy is driven by the company's employees. The company has to nurture its employees to maintain a highly motivated and entrepreneurial environment. Employees must be able to identify with the company's vision while they should also be given opportunities for personal growth. Authority and responsibility should be clearly defined.

It is not only the customer facing staff, but the company should also employ trend analysts, marketing professionals who can understand and communicate valuable customer insights. To have a highly ***dynamic operating environment*** *where product life is short, production runs are short, business operations are based on customer insights and fashion trends, it is important to have transparent and seamless communication between various departments.*

The sales and marketing teams receiving customer feedback need to communicate with the designers and merchandisers. Designers and merchandisers have to be highly aware of customer needs and preferences at store level. Similarly, production teams have to be in constant touch with sales and marketing teams, designers, and procurement specialists to ensure that there are no production delays.

Hence, there is a **lot of value to Mr. VK's statement** that good supply chain models enable people to understand potentials and see opportunities that a real time supply chains offers. *Understanding and implementing opportunities can be done only by motivated employees who are well aware of* ***different models*** *and* ***functions*** *and* ***operating processes*** *within the company*. This will enable them to take timely and informed decisions that can help in creating Flex Fashions portfolio of bestselling products.

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- Conceptually correct brief explanations are sufficient for each step.
- Alternate points and reasoning are also possible. However, issue must be addressed properly, and answer must respond to the requirement.

Question 2

(a) Alive Bottles Company is a growing manufacturer and supplier of the finest quality plastic water bottles. The full cost of one set (2 plastic bottles of 1 litre each) is ₹ 400. These bottles are available in multicolour. These bottles are leak-proof and ideal for storing cold beverages. These bottles are made with food-grade plastic and are safe to store beverages. The company produces and sells 95,000 sets per annum. The company has fixed its selling price to earn 20% profit on the selling price. Relevant cost data per annum are as follows:

Cost Component	Budget	Actual	Actual Cost p.a. (₹)
Direct Material	28,000 Kg.	31,920 Kg.	1,90,00,000
Direct Labour	32,000 Hrs.	35,625 Hrs	57,00,000
Machine Setup	10,000 Hrs.	10,000 Hrs.	38,00,000
Mechanical Assembly	60,000 Hrs.	60,000 Hrs.	95,00,000

It has been revealed that the actual and budgeted operating levels are the same. Actual and standard rates of material purchase and labour rate per hour are also the same. Any variance in cost is solely on account of the difference in the material usage and hours required to complete the production.

Another manufacturer has launched a similar set of bottles in the market at an aggressive price of ₹ 460 per set which has resulted in a downfall in the sales volume of the company. The management is concerned with the current market situation. It has called a meeting of the development and marketing team. After the meeting, the following decisions have been taken:

(I) To alter the design to make the bottle more attractive with a curvy shape that ensures a better grip and a handy wrist strap that helps to carry it with ease and also hang if necessary. This will cost ₹ 10 per set.

(II) To maintain the company's existing sales volume and amount of present profit per set, reduce the selling price by ₹ 50.

Required

(i) CALCULATE the present selling price and profit per set. Also, calculate the mark-up% on the full cost per set. ***(3 Marks)***

(ii) IDENTIFY the non-value-added activities in the production process. ***(1 Mark)***

(iii) CALCULATE the new target cost per set and the new revised cost per set after implementation of the above decisions. ***(2 Marks)***

(iv) CALCULATE the amount of reduction in cost that is required to achieve the new target cost. ***(1 Mark)***

(v) RECOMMEND the strategy, the company should adopt to achieve the target cost calculated in (iii) above. ***(5 Marks)***

(b) S Limited is a medical equipment manufacturing company and manufactures Magnetic Resonance Imaging (MRI) machines, pacemakers, blood pressure monitors, chemistry/blood gas analyzers, and wireless patient monitors etc. The company uses JIT manufacturing and carries insignificant levels of inventory. The company manufactures everything needed for manufacturing medical equipment except for semiconductors which is purchased from two local suppliers: RIM Electronics and XYZ Limited. Both the suppliers are reliable and seldom deliver late, however, RIM sells the semiconductor for ₹ 564 per

unit while XYZ sells the same semiconductor for ₹ 516 per unit. S Limited purchases 80 percent of semiconductors from XYZ Limited because of its lower price. The total annual demand is 10,00,000 units of semiconductors.

Ms. Geena, RIM's vice president sales, recently met Jatin, purchasing manager of S Limited and urged him to purchase more of its units, arguing that RIM's semiconductor is of much higher quality and so should prove to be less costly than its competitor's low-quality semiconductor. Geena offered to supply S Limited with all semiconductors required and asked for a long-term contract. With a five-year contract for 8,00,000 or more units, RIM will sell the semiconductor for ₹ 540 per unit. Jatin is intrigued by the offer and wonders if the higher-quality semiconductor actually does cost less than the lower-quality semiconductor purchased from XYZ Limited.

To assess the effect on cost of the two semiconductors, the following data were collected for supplier related activities and suppliers:

Activity data

	Activity Cost
Inspecting semiconductors (sampling only)	*₹ 57,60,000*
Reworking products (due to failed semiconductors)	*₹ 1,82,55,000*
Warranty work (due to failed semiconductors)	*₹ 11,52,00,000*

Supplier data

	RIM	***XYZ***
Purchase price per unit	*₹ 564*	*₹ 516*
Number of semiconductor units purchased	*2,00,000 units*	*8,00,000 units*
Sampling hours	*40 hours*	*1,960 hours*
Rework hours	*90 hours*	*1,410 hours*
Warranty hours	*400 hours*	*7,600 hours*

Required

(i) *EVALUATE the cost per unit for each supplier, taking into consideration the costs of the supplier-related activities and using the current prices and sales volume. ADVISE, whether the purchase manager of S Limited should accept or reject the contractual offer made by RIM.* ***(5 Marks)***

(ii) *Suppose that S Limited loses ₹ 2,40,00,000 in sales per annum because of the reputation effect of defective units attributable to failed semiconductor. SELECT one of the drivers already listed and assign the cost of lost sales to each supplier. CALCULATE change in per unit cost of each supplier. (Assume the situation before RIM accepting the offer exists.)* ***(3 Marks)***

Answer

(a) (i) Present selling price per unit (set) is **₹500** i.e., ₹400 (full cost per set) + **₹100** (1/5 of selling price or 1/4 of cost price)

Mark-up = (Profit per set / Full cost per set) × 100 i.e. (₹100/ ₹400) × 100 = 25%

(ii) **Machine setup** is the time required to get the machines and the assembly line ready for production. Alive Bottle company spent 10,000 hours on setting up, which does not add value to the bottle set directly. Hence, it is a ***non-value add activity***.

(iii) New Target Cost per unit (set)

Particular	Amount in ₹
Target Price (₹500 – ₹50)	450
Less: Desired Return per set	100
Target Cost per unit (set)	**350**

Revised Cost per unit (set)

Particular	Amount in ₹
Present cost per unit (set)	400
Add: Design Alteration Cost	10
Revised Cost per unit (set)	**410**

(iv) Cost Reduction Target

Particular	Amount in ₹
Revised Cost per unit (set)	410
Less: Target Cost per unit (set)	350
Cost Reduction Target per unit (set)	**60**

(v) As calculated above, revised cost per unit (set) is ₹410 while the target cost per unit is ₹350. Hence, the **cost has to be reduced at least by ₹60 per unit**. Critical aspects at which Alive Bottles Company shall focus–wastage in term of productivity i.e., usage of material and efficiency in labour; design of product in term of quality and function it renders, and material or components used as input; design of processes including lay-out through which product will be manufactured i.e., machine set-up and mechanical assembly. **Value analysis / value engineering** shall be applied (by answering following questions) to focus on the above stated aspects in order to attain the target cost–

- Can the product be designed better to make the production more efficient?
- Is reduction of design (reduce features only, not functions) possible?

- Can the design be minimized to include fewer parts and thus make it easier and efficient to manufacture?
- Can any process eliminate or reduced?
- Can be substitute parts to make it more efficient? Or
- Is there simply a better way of producing the same product?

It is important to note *that* ***target costing is a dynamic and corrective approach, care must be taken for product quality, characteristics, and utility***.

Analysis of the cost data shows the variances between the budget and actual material usage and labour hours. It is given that the material procurement rate and labour hour rate is the same for budgets and actuals. Hence, the increment in cost of direct materials and labour is due to **inefficient use** of material and labour hours to complete the same level of production of 95,000 sets of bottles.

Corrective actions to address these inefficiencies could result in the following savings:

- ***Inefficiencies resulted in use of extra 3,920 kg. of material.***

  Material cost per kg. = Actual cost/ Actual material usage = ₹1,90,00,000 / 31,920 kg. = ₹595.238… per kg.

  Therefore, inefficiencies resulted in extra cost = 3,920 kg. × ₹595.238… per kg. = ₹23,33,333.33

  If corrective action is taken, for 95,000 sets of bottles this translates to a saving of **₹24.56 per set.**

  OR (assumed alteration cost is part of direct material)

  Material cost per sq. ft. = Actual cost (revised)/ Actual material usage = (₹1,90,00,000 + ₹10 × 95,000) / 31,920 kg. = ₹625 per kg.

  Therefore, inefficiencies resulted in extra cost = 3,920 kg. × ₹625 per kg. = ₹24,50,000

  If corrective action is taken, for 95,000 sets of bottles this translates to a saving of **₹25.79 per set.**

- ***Inefficiencies resulted in extra 3,625 hours to be spent in production***.

  Labour cost per hr. = Actual cost / Actual labour hrs. = ₹57,00,000 / 35,625 hrs. = ₹160 per hr.

  Therefore, inefficiencies resulted in extra cost = 3,625 hrs. × ₹160 per hour = ₹5,80,000.

  If corrective action is taken, for 95,000 sets of bottles this translates to a saving of **₹6.11 per unit**.

- ***Machine setup cost*** is a non-value-added cost. Value analysis can be done to determine if the setup time of 10,000 hours can be reduced. However, since these activities have been carried out for a reason, care should be taken to ensure **that this change should not adversely impact the production activity later down the stream.**
- ***Mechanical assembly cost*** are costs incurred during the production process on the assembly line. Value analysis can be done to determine if the production process can be made more efficient. For example, the process can be streamlined, such that steps can be combined that can be handled by fewer people (process centering).

(b) (i) Workings

Calculation of "Activity Rate"

Supplier related Activity	Cost (₹) [A]	Activity Driver	Hours [B]	Activity Driver Rate (₹) [A]÷[B]
Inspecting Semiconductors	57,60,000	Sampling Hours	2,000	2,880
Rework Products	1,82,55,000	Rework Hours	1,500	12,170
Warranty Work	11,52,00,000	Warranty Hours	8,000	14,400

Statement Showing "Overheads Allocation"

Supplier related Activity	Cost Driver	RIM	XYZ	Total
Inspecting Semiconductors	Sampling Hours	**1,15,200** (40 hrs.× ₹2,880)	**56,44,800** (1,960 hrs.× ₹2,880)	57,60,000
Rework Products	Rework Hours	**10,95,300** (90 hrs.× ₹12,170)	**1,71,59,700** (1,410 hrs. × ₹12,170)	1,82,55,000
Warranty Work	Warranty Hours	**57,60,000** (400 hrs. × ₹14,400)	**10,94,40,000** (7,600 hrs. × ₹14,400)	11,52,00,000
Total		69,70,500	13,22,44,500	13,92,15,000

Statement Showing "Semiconductor Cost"

	RIM (₹)	XYZ (₹)
Supplier Related Activity Cost	69,70,500	13,22,44,500
Quantity	2,00,000	8,00,000
Unit Cost	34.85	165.31
Add: Semiconductor Price (base price)	564.00	516.00
Total	**598.85**	**681.31**

Alternatively

	RIM (₹)	XYZ (₹)
Purchase price	564.00	516.00
Inspecting semiconductors	**0.58***	**7.06**
Reworking products	**5.47***	**21.45**
Warranty work	**28.80**	**136.80**
Total	**598.85**	**681.31**

Or

	RIM (₹)	XYZ (₹)
Purchase price	564.00	516.00
Inspecting semiconductors	**0.57***	**7.06**
Reworking products	**5.48***	**21.45**
Warranty work	**28.80**	**136.80**
Total	**598.85**	**681.31**

** Due to rounding off impact*

Evaluation/ Advise

The basic price of per unit of semiconductor provided by the RIM and XYZ is ₹564 and ₹516 respectively. It seems that semiconductors provided by the RIM are costly. But it is also important to take into account per unit cost related to the supplier-related activities in respect of RIM and XYZ which is ₹34.85 and ₹165.31 respectively. Therefore, actual per unit cost to buy from RIM and XYZ is ₹598.85 and ₹681.31 respectively instead of the figures as mentioned earlier due to extra cost related to supplier related activities. Now the semiconductor from XYZ has become more costlier than the provided by the RIM. **Hence, it is financially viable to go ahead with RIM only**.

Furthermore, RIM's semiconductor is of much higher quality and wants to enter with S in a five-year contract for 8,00,000 or more units at a lower base rate of ₹540 per unit i.e., ₹24 less than the normal quoted rate. This offer is a good opportunity for S since RIM will be able to procure high quality semiconductors at comparatively less price. In addition, better relationships and increased interaction with RIM will lead to less incidents or issues of poor performance in S, which in turn lead to reduced costs through failures.

(ii) Change in per unit cost of each supplier

Warranty hours would act as the best driver of the three choices.

Calculation of "Activity Rate"

Activity	Cost (₹) [A]	Activity Driver	Hours [B]	Activity Driver Rate (₹) [A]÷[B]
Loses in sales	2,40,00,000	Warranty hours	8,000	**3,000**

Statement Showing "Assignment/ Allocation of Cost"

Activity	Cost Driver	RIM	XYZ	Total
Loses in sales	Warranty hours	12,00,000 (400 hours × ₹3,000)	2,28,00,000 (7,600 hours × ₹3,000)	2,40,00,000

Statement Showing "Assignment of Cost/ unit"

	RIM (₹)	XYZ (₹)
Loses in sales (assigned)	**12,00,000**	**2,28,00,000**
Quantity	2,00,000	8,00,000
Unit Cost	**6.00**	**28.50**

Change in unit cost of each supplier on account of lost sales (based on warranty hours) would be ₹6 and ₹28.50 for RIM and XYZ respectively.

Question 3

Chetan, an owner of a firm, operates a chain of fast-food restaurants that has expanded to more than 50 outlets, of which 90 percent are franchised. Two of the firm-operated outlets, RST and XYZ, are among the fastest growing outlets. Both are considering expanding their menus to include pasta. Purchase and installation of the necessary equipment costs ₹ 10,80,000 per outlet. Other information is as follows:

Particulars	*RST (₹)*	*XYZ (₹)*
Current Investment	*53,40,000*	*1,04,40,000*
Revenue	*66,03,000*	*1,05,64,000*
Expense	*55,35,000*	*89,98,000*

Adding pasta to the menu may increase the profits by ₹ 1,83,600 for RST and ₹ 2,19,600 for XYZ outlets, respectively.

The firm evaluates its manager's performance on the basis of return on investment. Managers of individual outlets have decision rights over the pasta expansion.

Required

(i) CALCULATE the return on investment for both outlets before pasta is added, for the pasta project only, and for both the outlets after expansion. ***(4 Marks)***

(ii) Assuming a 14 per cent cost of capital, CALCULATE residual income for both outlets before and after the potential expansion. ***(4 Marks)***

(iii) EVALUATE on the basis of ROI whether the firm's operated outlets RST and XYZ would choose to expand their menus. What difference would the answer make if the outlets were franchised? ***(3 Marks)***

(iv) Chetan is seeking investment funds to expand the chain of fast-food restaurants to 100 outlets, which would be firm's operated. He is currently in the process of putting together a business plan which will outline his strategy to increase the firm-operated outlets. He recently attended a seminar on what to include in a business plan. Chetan remembers that he will need to determine what the Critical Success Factors (CSFs) for his business are, but he is confused about how these differ from core competences.

(a) ASSESS why Chetan needs to identify CSFs as part of its strategy development and how they differ from core competences. ***(6 Marks)***

(b) ADVISE the possible CSFs for Chetan's chain of fast-food restaurants. ***(3 Marks)***

Answer

(i) <u>Return on Investment (ROI) for the outlets before, after and for the expansion project.</u>

Return on Investment (ROI) for the outlets before the expansion project.

Particulars	**RST (₹)**	**XYZ (₹)**
Revenue	66,03,000	1,05,64,000
Less: Expense	55,35,000	89,98,000
Net income (profit) ...(A)	10,68,000	15,66,000
Investment ...(B)	53,40,000	1,04,40,000
Return on investment (ROI) ...(A)/ (B)	**20.00%**	**15.00%**

Return on Investment (ROI) for the expansion project alone.

Particulars		RST (₹)	XYZ (₹)
Net income (profit)	…(A)	1,83,600	2,19,600
Investment	…(B)	10,80,000	10,80,000
Return on investment (ROI)	**…(A)/ (B)**	**17.00%**	**20.33%**

Return on Investment (ROI) for the outlets after the expansion project.

Particulars		RST (₹)	XYZ (₹)
Profit before pasta project		10,68,000	15,66,000
Add: Profit from pasta project		1,83,600	2,19,600
Total profit after pasta project	…(A)	12,51,600	17,85,600
Investment before pasta project		53,40,000	1,04,40,000
Add: Investment for pasta project		10,80,000	10,80,000
Total investment after pasta project	…(B)	64,20,000	1,15,20,000
Return on investment (ROI)	**…(A)/ (B)**	**19.50%**	**15.50%**

(ii) Residual income (RI) before and after the expansion project.

Residual Income before expansion project.

Particulars		RST (₹)	XYZ (₹)
Net income (profit)	…(A)	10,68,000	15,66,000
Investment	…(B)	53,40,000	1,04,40,000
Cost of capital @14% of (B)	…(C)	7,47,600	14,61,600
Residual income (RI)	**…(A) – (C)**	**3,20,400**	**1,04,400**

Residual Income after expansion project.

Particulars		RST (₹)	XYZ (₹)
Profit after pasta project	…(A)	12,51,600	17,85,600
Investment after pasta project	…(B)	64,20,000	1,15,20,000
Cost of capital @14% of (B)	…(C)	8,98,800	16,12,800
Residual income (RI)	**…(A) – (C)**	**3,52,800**	**1,72,800**

(iii) Evaluation of project based on ROI

Summary of ROI before and after the project.

Particulars	RST (₹)	XYZ (₹)
ROI before the project	20.00%	15.00%
ROI for the project	17.00%	20.33%
ROI after the project	19.50% ↓	15.50% ↑

The ROI of outlet RST falls from 20% to 19.50% after the implementation of the pasta project. Hence outlet RST should not go ahead with the project. Referring to above table, the ROI on pasta project alone is 17%, while the ROI without the pasta project is 20%. Hence, implementing the project reduces the overall ROI for outlet RST to 19.50%.

The ROI of outlet XYZ increases from 15% to 15.50% after the implementation of the pasta project. Hence, outlet XYZ should go ahead with the project. Referring to table above, the ROI on pasta project alone is 20.33%, while the ROI without the pasta project is 15%. Hence, implementing the project increases the overall ROI for outlet XYZ to 15.50%.

In a franchising agreement, there is a contractual relationship between 2 entities, whereby one entity (the franchisor) allows the other entity (franchisee) to use its brand name and business model to distribute products or services to customers. The franchisee in return pays an initial fee and also continuing royalty fee for the use of the franchisor's brand name and business model.

When opening new outlets, the company does not know the business potential and chances of success of the different outlets. In a franchise agreement, the franchisor can assess the profitability potential of various sites/ locations without significant risk. If a specific outlet fails, the franchisee bears the loss caused by the failure. Franchise outlets typically open faster and become profitable faster than independently owned outlets.

Chetan can let out outlets RST and XYZ on franchise and in return receive initial franchise fee along with regular royalty fee from the franchisee / licensee. He already has many outlets under the franchise business model. Chetan (the franchisor) benefits from this model because **he need not make any investment towards implementing this project. This investment of ₹10,80,000 is instead borne by the franchisee and not by Chetan**. Hence instead of making investments in the outlets, Chetan shares the brand name and technical know-how in return for franchise fee. ***This would help Chetan with his expansion plans***.

Alternatively- The two units currently have different ROIs. The smaller **RST outlet** is earning an **ROI** of **20%,** while the larger **XYZ outlet** is earning an **ROI** of **15%.**

Since the project's ROI (for Pasta) is **17%** for RST and **20.33%** for XYZ, adding the project to the RST outlet lowers its average ROI; adding the project to the XYZ outlet raises its average ROI. The **RST outlet manager will avoid adding pasta to the menu, since the outlet's ROI would drop as a result.**

The XYZ outlet's manager, however, will want to add pasta since the outlet's ROI would subsequently rise.

If the stores were franchised units, both owners would definitely expand. **The ROI of the project is higher than the cost of capital. This ensures a positive residual income for the project. As long as the residual income is positive, any franchise owner would jump at the opportunity.**

Franchise owners would not care if the store's ROI dropped as long as the residual income increased.

(iv) (a) Using Critical Success Factors

Critical Success Factors (CSFs) are a small number of areas in which:

- Satisfactory results will enable successful competitive performance and
- An organisation must excel in order to outperform competition.

Chetan must attempt to determine the CSFs for his company- operated outlets for a number of reasons.

(1) **It is the only way he can present potential investors with a sound business case for his venture**. He is convinced with the company operated outlets. But he needs to show he can define what success is, and what is necessary to achieve it, within the business sector he has chosen.

(2) **CSFs provide a basis for strategy formulation**, as they focus on the strategic goals that must be pursued in order to compete successfully: the features of Chetan's product/ service that will be most highly valued by customers, and which will be a potential source of competitive advantage. The fast – food market is highly competitive, so outperforming competitors will be a helpful priority.

(3) **CSFs offer an alternative to a more comprehensive goal structure or hierarchy of objectives, which may be too rigid for a small start-up venture** in a new market: they will enable Chetan to focus on competitive essentials and remain flexible in how he (and individual outlets within his chain) will pursue them at the tactical and operational level. This will allow for variations in local markets, infrastructure, product availability, outlet manager ability and so on.

(4) **CSFs provide a useful framework for identifying the business processes and activities which will yield each** CSF; defining the Key Performance Indicators (KPIs) which will be used to evaluate performance in delivering them; and monitoring competitor activity for its effect on the CSF structure.

Distinguishing CSFs from core competences

Competences are 'the activities or processes through which the organisation deploys its resources effectively.' Core competences are competences which both outperform competitors and are unique or difficult for competitors to imitate.

Core competences represent the distinctive abilities that Chetan's venture must develop and display if its CSFs are to be achieved. The two concepts are related, in that CSFs should focus attention on whether the venture has or can develop the core competences to compete successfully: both concepts take a competitive view of strategy. However, the emphasis has shifted from what must be achieved (CSFs) to the special skills and processes that will enable the required achievement (core competences).

(b) Possible CSFs for Chetan's chain of fast food restaurants

The CSF's for Chetan's chain of fast food restaurants could include the following.

- *Right restaurant locations* – Proximity to significant centres of population, easy access, and adequate parking facilities.
- *Distinctive brand identity* – Recognizable and distinctive brand with a good reputation for quality of service and diversity and freshness of product.
- *Speed of service* – Must meet customer expectations based on benchmark standards set by competitors.
- *Child friendly facilities* – Needs of children and families must be catered for successfully.

Alternatively (iv)

(a) Critical Success Factor (CSF) and core competencies

Critical Success Factors (CSF) are areas that are *critical for business success* and for the attainment of corporate objectives. CSFs are performance requirements that are fundamental to an organization's success. These are the areas where it is essential for the organization to outperform its competitors in order to succeed. Performance measures are required to be put in place in such areas and keep them in focus in order to attain strategic objectives.

Identifying CSFs would depend on –

1. the industry that the organization operates in. For example, the food industry must have as one of its CSFs 'compliance with FSSAI standards'.
2. the company itself and its situation within the industry. For example, a firm that has decided to compete on the basis of quality, features of a product or service that are valued by the customer would define CSF for the organization.
3. temporal organisational factors. For example, short-term cash and working capital management.
4. the wider economic factors. For example, in a time of global crises 'gas supply availability' could be a CSF.

Core competencies are the *resources* and *capabilities* of an organization that gives it a competitive advantage over its rivals. Core competencies are unique to the organization and are difficult to replicate by competitors. Core competencies could be an organization's IT systems that can build flexibility into its operations, culture of fostering innovation, ability to have timely access to talented pool of human resource to implement a project, strong communication systems within an organization etc. More the core competencies an organization develops, the better are chances of success.

An organization has different ***resources*** like physical resources, human resources, and financial resources. An organization must be aware of the resources it currently has and what would be required in future in order to obtain its strategic objectives.

Resources that have the *capability of giving a competitive edge* would be– development of organization brand, patents, trademarks (intangible resource), access to critical raw material needed for production (physical resource), employee development and training programs that cultivate talent within an organization,

Hence, if an organization builds a set of strong resources and core competencies and deploy them in areas that are critical to success (that is the Critical Success Factors (CSF)) then an organization will be in a position to develop winning strategies that can assure them success over its competitors. A successful business strategy would require the organization to match its core competencies, resources and critical success factors.

Chetan can use any of the identified core competencies to expand his outlets. For example, a well-developed digital presence (core competency) using good IT infrastructure (resource) can help increase the reach of his business to potential customers. Offering good quality food (CSF) to a widespread customer base would improve the brand value of his business (resource). Strong brand value is an intangible resource that can then be used to diversify into other related industries for example opening gourmet hotels catering to niche customer base (strategy).

(b) Possible CSFs for Chetan's fast food restaurants:

- *Quality of food served at outlets:* Today's health conscious customer would prefer to have food that does not adversely impact his health.
- *Innovation:* Customer tastes and preferences are generally changing in the fast food industry. Hence, Chetan may have to come up with newer product (food items) offering to keep up with customer preferences.
- *Distribution channels:* Chetan has to have good distribution channels that ensure that the market reach is as widespread as possible.
- *Distinctive brand identity:* Recognizable and distinctive brand with a good reputation for quality of service and diversity and freshness of product.
- *Speed of service:* Must meet customer expectations based on benchmark standards set by competitors.
- *Child friendly facilities:* Needs of children and families must be catered for successfully.

- Conceptually correct brief explanations are sufficient for (iii) & (iv).
- Alternate points/ CSFs (or examples) and reasoning are also possible. However, issue must be addressed properly, and answer must respond to the requirement.

Question 4

(a) GBTCL Bearings is a multi-product manufacturing company. It is preparing its annual budget for 2023-24. The management has come to know that in the last year, the budget presented before them, was prepared without the involvement of senior staff in the budget process. Now the management has strictly advised the budget team to involve the senior staff in the budget process for 2023-24.

Required

LIST the potential three advantages and two disadvantages to the GBTCL Bearings of involving the senior staff in the budget preparation process. ***(5 Marks)***

OR

CEC Limited produces electric scooters. CEC uses a system of standard costing to set its budgets. Budgets are set annually by the Finance department and approved by the Board of Directors of CEC. The Finance department prepares variance reports each month for review at the Board of Directors meeting, where actual performance is monitored by comparison to budgeted figures.

A new CFO (Chief Finance Officer), Akshaj has recently joined CEC from a competitor organisation where there was a Total Quality Management culture. Customer Service discuss the implementation of Kaizen costing at the next meeting of the Board of Directors. He would also like to review the current planning and control system at CEC with a view to making changes so that it could support Kaizen costing concepts.

Required

(i) EXPLAIN two basic principles of Total Quality Management. ***(2 Marks)***

(ii) RECOMMEND three changes required to CEC's planning and control system to support the adoption of Kaizen costing concepts. ***(3 Marks)***

(b) The management of a leading telecom company providing fixed-line services is quite worried about customer complaints regarding service quality and billing. Customer VGB has appointed Mr Kumar as its head of service quality. He has been assigned the task to analyse the complaints received from the customers for faults, excess charging, customer service etc. The necessary information is given below:

Complaint Categories	***No. of Complaints***
Customer Service	*155*
Activation of wrong plans	*110*
Connection Installations	*106*
Late attending to complaints	*247*
Overcharging/Wrong Billing	*504*
Faults in Line	*385*
Transfer of connections	*45*
Non-posting of payments to account	*61*

Required

(i) PREPARE a frequency table to construct Pareto Chart for the complaint type. (Pareto chart preparation is not required). ***(3 Marks)***

(ii) IDENTIFY the key complaint categories area where the head quality should focus on service. ***(2 Marks)***

(Calculations up to 2 Decimals)

(c) GPR furniture is a manufacturer of high-quality wooden doors. It has two customers VGB and VGC. The selling price of one wooden door is ₹ 7,000. The production cost per unit is ₹ 5,350.

Details of customers' VGB and VGC for the period are given below:

Particulars	***Customer VGB***	***Customer VGC***
Wooden Doors purchased (nos.)	*1,250*	*2,500*
No. of purchase orders	*10 (each of 125 doors)*	*20 (each of 125 doors)*
No. of deliveries		
- Normal	*8*	*0*
- Rushed	*2*	*0*
Kilometres per delivery	*200*	*200*

Additional costs are:

Order processing cost	*₹ 3,000 per order*
Normal delivery cost	*₹ 20 per kilometre*
Product handling cost	*₹ 100 per door*
Rushed delivery cost	*₹ 30 per kilometre*

The company has the policy to give a discount of 6% on the selling price on orders for 100 doors or more and to further give a 10% discount on the undiscounted selling price if a customer uses his own transport to take the delivery at the factory gate.

Assume that production levels are not altered by these orders.

Required

(i) CALCULATE the contribution and profit per unit for each customer. ***(6 Marks)***

(ii) ANALYSE the profitability by comparing profit per unit for each customer. ***(2 Marks)***

(iii) COMMENT on the discount policy on normal delivery. ***(2 Marks)***

Answer

(a) <u>There are potential advantages and disadvantages of the involvement of staff in the preparation of the budget.</u>

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 examples, they may have a better knowledge of product specifications and how the costs may be controlled more efficiently and effectively.
- Senior staff cannot blame unrealistic goals as an excuse for not achieving budget expectations.
- Senior staff would feel that they are being appreciated for the value that their experience brings to the running of the multiproduct manufacturing company.
- 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 in job profile 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.
- 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.

OR

(i) Principles of Total Quality management

Following points are principles that help guide companies in achieving quality improvement. The principles are founded on the idea that upper management must develop a commitment to quality and provide a system to support this commitment that involves all employees and supplier'. Further, quality improvements cannot happen without organizational change that comes from upper management.

- "Create constancy of purpose towards improvement". Replace short-term reaction with long-term planning.
- "Adopt the new philosophy". The implication is that management should actually adopt his philosophy, rather than merely expect the workforce to do so.
- "Cease dependence on inspection". If variation is reduced, there is no need to inspect manufactured items for defects, because there won't be any.
- "Move towards a single supplier for any one item." Multiple suppliers mean variation between feedstock.
- "Improve constantly and forever". Constantly strive to reduce variation.
- "Institute training on the job". If people are inadequately trained, they will not all work the same way, and this will introduce variation.

- "Institute leadership". Deming makes a distinction between leadership and mere supervision. The latter is quota and target-based.
- "Drive out fear". Deming sees management by fear as counter- productive in the long term, because it prevents workers from acting in the organisation's best interests.
- "Break down barriers between departments". Another idea central to TQM is the concept of the 'internal customer', that each department serves not the management, but the other departments that use its outputs.
- "Eliminate slogans". Another central TQM idea is that it's not people who make most mistakes - it's the process they are working within. Harassing the workforce without improving the processes they use is counter-productive.
- "Eliminate management by objectives". Deming saw production targets as encouraging the delivery of poor-quality goods.
- "Remove barriers to pride of workmanship". Many of the other problems outlined reduce worker satisfaction.
- "Institute education and self-improvement".
- "The transformation is everyone's job".

Alternative

Total Quality Management has two basic principles: 'get it right first time 'and 'continuous improvement'. ***Get it right first time*** essentially equates to aiming for a zero-defect target. This principle is based on the premise that prevention costs are less than the cost of correction.

The principle of ***continuous improvement*** is based on the idea that, although the ideal state may never be achieved, it is the aim. A target of zero defects may not be achievable. However, the principle of never being satisfied until this is achieved will engender the correct behaviour of continually seeking to improve.

(ii) The suggestive changes which are required to be adopted Kaizen Costing concepts in CEC are as follows:

Standard Cost Control System to Cost Reduction System –

Traditionally Standard Costing system assumes stability in the current manufacturing process and standards are set keeping the normal manufacturing process into account thus the whole effort is on to meet performance cost standard.

On the other hand, Kaizen Costing believes in continuous improvements in manufacturing processes and hence, the goal is to achieve cost reduction target. *The first change required is the standard setting methodology i.e., from earlier Cost Control System to Cost Reduction System.*

Reduction in the periodicity of setting Standards and Variance Analysis –

Under the existing planning and control system followed by the CEC, standards are set annually and based on these standards monthly variance reports are generated

for analysis. But under Kaizen Costing system cost reduction targets are set for small periods say for a week or a month. So, *the period covered under a standard should be reduced from annually to monthly* and the current practice of generating variance reports may be continued or may be reduced to a week.

Participation of Executives or Workers in standard setting –

Under the Kaizen Costing system participation of workers or executives who are actually involved in the manufacturing process are highly appreciated while setting standards. So, *the current system of setting budgets and standards by the Finance department with the mere consent of the Board of Directors required to be changed*.

(b) (i) Frequency Table

Complaint Categories	No. of Complaints	% of Total Items	Cumulative Percentage
Over Charging/ Wrong Billing	504	31.25	31.25
Faults in Line	385	23.87	55.12
Late attending of complaints	247	15.31	70.43
Customer Service	155	9.61	80.04
Activation of wrong plans	110	6.82	86.86
Connection Installations	106	6.57	93.43
Non-posting of payments to account	61	3.78	97.21
Transfer of connections	45	2.79	100.00
Total	1,613		

(ii) Mr. Kumar should focus on the **over-charging/ wrong billing, faults in line, late attending of complaints, and customer service (in priority order)**, because they constitute 80% of complaints instances.

(c) (i) Contribution and profit per unit of Wooden Door

Particulars	Customer VGB	Customer VGC
Selling price per wooden door (undiscounted)	7,000	7,000
Less: Discount (quantity) ₹7,000 × 6%	420	420
Less: Discount (delivery) ₹7,000 × 10%	---	700
Selling price (net of discount)	6,580	5,880
Less: Production cost per unit (variable)	5,350	5,350
Contribution per wooden door	**1,230**	**530**

Both customers VGB and VGC place orders of more than 100 doors. Hence both customers get discount for quantity ordered at 6% of ₹7,000 = ₹420 per wooden door.

Customer VGB has both normal and rushed deliveries provided by GPR furniture. Customer VGC has no deliveries from GPR furniture, which means that the customer is using his own transport to take delivery from factory gate. Hence Customer VGC is given a discount of 10% of ₹7,000 = ₹700 per wooden door.

Calculation of profit per wooden door

Particulars	**Customer VGB**	**Customer VGC**
Contribution per wooden door	**1,230**	**530**
Quantity	1,250	2,500
Total contribution …(A)	**15,37,500**	**13,25,000**
Order processing cost # of orders × cost per order Customer VGB = 10 orders × ₹3,000 Customer VGC = 20 orders × ₹3,000	30,000	60,000
Total order processing cost …(B)	**30,000**	**60,000**
Delivery cost		
Normal delivery cost # of deliveries × 200 kms per delivery × cost per kilometer (₹20 per km)	32,000	0
Rushed delivery cost # of deliveries × 200 kms per delivery × cost per kilometer (₹30 per km)	12,000	0
Total delivery cost …(C)	**44,000**	**0**
Product handling cost # number of wooden doors sold × product handling cost per unit Customer VGB = 1,250 doors × ₹100 per door Customer VGC = 2,500 doors × ₹100 per door	1,25,000	2,50,000
Total product handling cost …(D)	**1,25,000**	**2,50,000**
Total profit on sales **….(A)- (B)-(C)-(D)**	13,38,500	10,15,000
Profit per wooden door sold	**1,070.80**	**406**

(ii) Analysis- The profit per wooden door for Customer VGB is ₹1,070.80 per door and profit per wooden door for Customer VGC is ₹406 per door. The profit per wooden door is significantly lower in case of Customer VGC as compared to Customer VGB. ***This is primarily because of the discount given to Customer VGC for arranging for transport to take delivery at the factory gate. The discount works out to ₹700 per door which significantly reduces the contribution per wooden door.***

Hence, it is more profitable to sell the doors to Customer VGB as compared to Customer VGC.

Alternatively- Even though customer VGB has a lower sales volume (**= 50% of customer VGC**), it is contributing almost **1.32 times** the profit that is being contributed by VGC. Also, the overall discount offered to customer VGB is quite less.

(iii) Discount policy on normal delivery

Both customers VGB and VGC are located 200 kms from GPR furniture. Customer VGB utilizes delivery services of GPR furniture for which the charge is ₹20 per kilometre.

Hence for a single delivery the cost will be 1 delivery × ₹20 per km × 200 kms = ₹4,000 per delivery. Each order comprises of 125 doors. Hence the delivery cost per wooden door is ₹32 per wooden door.

Note that out of the total sales of 1,250 doors to customer VGB, normal delivery is for 1,000 doors (8 orders × 125 doors each) while the rushed delivery order is for 250 doors (2 orders × 125 doors).

On the other hand, customer VGC takes delivery from the factory gate by making his own arrangements. For this he gets a discount of 10% of the undiscounted selling price which is ₹700 per wooden door.

Has GPR done a normal delivery for customer VGC, the delivery cost would be similar to that incurred for customer VGB, that is ₹32 per wooden door. Instead GPR is giving a discount of ₹700 per wooden door for this customer to make his own transportation arrangements. This results in a net loss in revenue of ₹668 per wooden door sold to customer VGB.

This is the primary reason for the low profit per unit calculated in table above, for sales made to customer VGB. Hence it is suggested to ***discontinue the discount policy given to customers for making their own arrangements for taking deliveries from the factory gate***.

Question 5

(a) A manufacturing company furnishes the following data relating to the actual output of 14,300 units produced in the last quarter:

Particulars	***(₹)***	***(₹)***
Sales …(A)		*12,28,000*
Direct Material	*2,17,750*	
Direct Wages	*1,72,500*	
Variable Overheads	*2,12,000*	
Total Cost …(B)		*6,02,250*
Profit …(A)-(B)		*6,25,750*

The standard material cost per unit is ₹ 15. The standard wage rate is ₹ 10.50 per hour and the standard variable overhead rate is ₹ 12.50 per hour.

The company uses a JIT system and the budgeted production and sale quantity is 15,000 units.

The following are the variances from standard costs recorded during the last quarter:

	Particulars	***Variance (₹)***
1.	***Direct Material Cost Variances***	*3,250 A*
2.	***Direct Labour Variances***	
	Labour Rate Variance	*2,640 F*
	Labour Efficiency Variance	*5,040 F*
3.	***Variable Overhead Variances***	
	VOH Expenditure Variance	*?*
	VOH Efficiency Variance	*?*
4.	***Sales Variance***	
	Sales Price Variance	*12,500 F*
	Sales Volume Variance	*?*

Required

(i) CALCULATE the missing variances. ***(6 Marks)***

(ii) PREPARE the original budget and reconcile the budgeted profit with the actual profit. ***(6 Marks)***

(b) Unique Products Limited manufactured and sold 7,500 units per year of a particular product, generating sales value of ₹ 7,50,000. After charging direct material cost 30% of sales value, direct labour cost 20% of sales value and variable overheads cost ₹ 10 per unit, the company earned ₹ 16.65 per unit during the year.

The existing equipment can produce a maximum of 10,000 units per annum. In case, the demand exceeds the maximum output, new equipment will be required which will cost ₹ 5 Lakhs and it will have a life span of 10 years, with no residual value.

A prospective customer is willing to place an order with the company for 5,000 units per year regularly at 90% of the present selling price, which will be, if accepted, over and above the existing market for 7,500 units.

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

(i) 10% in the Direct Materials.

(ii) 25% in the Direct Labour.

(iii) ₹ 25,000 in fixed overheads per year.

If the order of additional 5,000 units is accepted, the fixed overheads will increase by another ₹ 25,000 by way of increased administration expenses. (Assume there are no opening/closing stock inventories. Variable cost will increase in direct proportion to the output.)

You are required to RECOMMEND whether the company should accept the new business at the stipulated price or decline the new order and make a concerted sales drive to sell the present unused capacity at the present selling price. The sales drive will cost ₹ 30,000 per year. ***(8 Marks)***

Note: Ignore the financial charges on the cost of the equipment.

Answer

(a) Part (i) & (ii)

For Cross Verification Only

Direct Material

Material Cost Variance	=	₹3,250 (A)
Material Cost Variance	=	Standard Cost* – Actual Cost
⇒ ₹3,250 (A)	=	Standard Cost – ₹2,17,750
⇒Standard Cost	=	₹2,14,500
		(*) Standard Cost refers to Standard Cost of Standard Quantity for Actual Output
Actual Quantity	=	$\left(\frac{₹2,14,500}{₹15}\right)$
	=	14,300 unit (given)

Direct Labour ₹

Labour Cost Variance	=	Standard Cost* – Actual Cost
⇒ ₹7,680 (F)	=	Standard Cost – ₹1,72,500

⇒ Standard Cost = ₹1,80,180

(*) Standard Cost refers to Standard Cost of Standard Time for Actual Output/Production

Standard Cost per unit = $\left(\frac{₹1,80,180}{14,300 \text{ units}}\right)$ = ₹12.60

Standard Rate per hour = ₹10.50

Standard Time per unit = $\left(\frac{₹12.60}{₹10.50}\right)$ **= 1.20 hrs**.

Labour Rate Variance = Standard Cost of Actual Time – Actual Cost

⇒ ₹ 2,640 (F) = Standard Cost of Actual Time – ₹1,72,500

⇒ Standard Cost of Actual Time = ₹1,75,140

Actual Hours Worked = $\left(\frac{₹1,75,140}{₹10.5}\right)$ = **16,680**

Variable Overheads

Standard Rate per hour = ₹12.50

Standard Rate per unit = ₹12.50 × 1.2 hrs. = ₹15.00

Expenditure Variance = Budgeted Overheads for Actual Hours Worked – Actual Variable Overheads

= ₹12.50 ×16,680 hrs – ₹2,12,000

= ₹2,08,500 – ₹2,12,000

= **₹3,500 (A)**

Efficiency Variance = Standard Variable Overhead for Output – Budgeted Overheads for Actual Hours

Or

= Standard Rate per hour × (Standard Hours for actual output – Actual Hours Worked)

= ₹12.50 × (14,300 hrs × 1.2 hrs – 16,680 hrs)

= **₹6,000 (F)**

Sales Variances (Turnover Based)

Price Variance = Actual Sales – Standard Sales

⇒ ₹12,500 (F) = ₹12,28,000 – Standard Sales

⇒ Standard Sales = ₹12,15,500

Budgeted Price per unit $= \left(\frac{\text{Standard Sales}}{\text{Actual Quantity}}\right)$

$= \left(\frac{₹12,15,500}{14,300 \text{ units}}\right)$

= **₹85**

Volume Variance = Standard Sales – Budgeted Sales

= ₹12,15,500 – ₹85 × 15,000 units

= **₹59,500 (A)**

Sales Variances (Margin Based)

Sales Margin Price Variance

= Sales Price Variance

= 12,500 (F)

Original Budget and Standard Cost Sheet

Particulars (Budgeted units - 15,000 units)	**Budget (₹)**	**Standard Cost Per Unit (₹)**
Sales ...(A)	**12,75,000**	85.00
Direct Materials @ ₹15 per unit	**2,25,000**	15.00
Direct Wages @ ₹12.60 per unit	**1,89,000**	12.60
Variable Overheads @ ₹15 per unit	**2,25,000**	15.00
Total Cost ...(B)	**6,39,000**	42.60
Budgeted Profit ...(A-B)	**6,36,000**	**42.40**

Sales Margin Volume Variance = Sales Volume Variance × Budgeted Net Profit Ratio

$= 59,500 \text{ (A)} \times \left(\frac{₹42.4}{₹85}\right)$

= **₹29,680 (A)**

Alternatively

Sales Margin Volume Variance = Budgeted Margin p.u.× (Actual Qty.– Budgeted Qty.)

= ₹42.40 × (14,300 units – 15,000 units)

= **₹29,680 (A)**

Statement of Reconciliation (Budgeted and Actual Profit)

	₹
Budgeted Profit	**6,36,000**
Add: Sales Margin Volume Variance	29,680 (A)
Standard Profit	**6,06,320**
Add: Sales Price Variance	12,500 (F)
Less: Material Cost Variances	3,250 (A)
Add: Labour Efficiency Variance	5,040 (F)
Add: Labour Rate Variance	2,640 (F)
Add: Variable Overhead Efficiency Variance	6,000 (F)
Less: Variable Overhead Expense Variance	3,500 (A)
Actual Profit	**6,25,750**

(b) Workings: Incremental Approach

Particulars	Current Demand Original Rate	Current Demand Revised Rate	Option – I (New Customer)	Option – II (Concerted Sales Drive)
Sales (units)	7,500	7,500	5,000 (i.e., 2/3 of 7,500)	2,500 (i.e., 1/3 of 7,500)
Sales in (₹) …(A)	**7,50,000**	**7,50,000**	**4,50,000**	**2,50,000**
Direct Material (₹) Original- 30% of sales value; Revised- Original × 110%	2,25,000	2,47,500	1,65,000	82,500
Direct Labour (₹) Original- 20% of sales value; Revised- Original × 125%	1,50,000	1,87,500	1,25,000	62,500
Variable Overheads (₹) ₹10 per unit	75,000	75,000	50,000	25,000
Variable Cost (₹) …(B)	**4,50,000**	**5,10,000**	**3,40,000**	**1,70,000**
Contribution (₹) …(A) - (B)	**3,00,000**	**2,40,000**	**1,10,000**	**80,000**
Less: Sales Drive Cost (₹)	0	0	0	30,000
Less: Dep. On New Equipment (1/10)	0	0	50,000	0
Less: Fixed Overheads (₹) Original- (3,00,000- 16.65 ×7,500); Revised- +25,000	1,75,125	2,00,125	25,000	0
Earnings (₹)	**1,24,875**	**39,875**	**35,000**	**50,000**

Alternatively: Total Approach

Particulars	Current Demand Original Rate	Current Demand Revised Rate	After Considering Option – I	After Considering Option – II
Sales (units)	**7,500**	**7,500**	**12,500**	**10,000**
Sales in (₹) …(A)	7,50,000	7,50,000	12,00,000	10,00,000
Direct Material (₹)	2,25,000	2,47,500	4,12,500	3,30,000
Direct Labour (₹)	1,50,000	1,87,500	3,12,500	2,50,000
Variable Overheads (₹)	75,000	75,000	1,25,000	1,00,000
Variable Cost (₹) …(B)	4,50,000	5,10,000	8,50,000	6,80,000
Contribution (₹) …(A)-(B)	**3,00,000**	**2,40,000**	**3,50,000**	**3,20,000**
Less: Sales Drive Cost (₹)	0	0	0	30,000
Less: Dep. On New Equipment (1/10)	0	0	50,000	0
Less: Fixed Overheads (₹)	1,75,125	2,00,125	2,25,125	2,00,125
Earnings (₹)	**1,24,875**	**39,875**	**74,875**	**89,875**
Incremental Change	**N.A.**	**---**	**35,000**	**50,000**

Recommendation

If company decides to accept order from prospective customer (option 1) who is willing to buy 5,000 units per year regularly, there would be incremental earnings of ₹35,000 per annum which is lower than the incremental earnings that would be earned from concerted sales drive (option 2). Based on purely financial consideration company may decide to not to go beyond the current capacity level *i.e., may opt for concerted sales drive only.* But, this financial analysis of both options did not consider any qualitative factors, such as–

(i) Developing and maintaining long term and intimate relationships with the profitable customers provides valuable benefits to the company as the relationships between company and customers grow, a customer who is satisfied with the company's products and services, tends to commit the relationship, and *buy more over time*.

(ii) Cost of keeping the existing customers is *less expensive* than the cost of acquiring new customers.

(iii) Another consideration is the *impact on existing customers* if the price offered for the special order is lower than the regular price. These effects may create a bad dynamic between the company and its customers, or they may cause customers to seek products from competitors.

Therefore, an overall cost/ benefit analysis in which Unique Products Limited **would consider** not only the quantitative but the qualitative factors also, before making its final decision on whether or not to accept the special order.

Question 6

(a) *APR is about to launch a new model of a gaming console, Product 'AS5'. Product 'AS5' is the company's first gaming console and features unique technology developed by APR. APR expects the unique technology and exclusive design to attract both new and existing customers.*

Given the unique nature of this gaming console, APR has no experience of the price demand relationship of this product. However, based on experience from previous products, it expects that during the product's introductory phase, at a selling price of ₹ 21,000, the demand would be 2,000 units per month. For every ₹ 2,000 increase in selling price the monthly demand would reduce by 250 units, and for every ₹ 2,000 decrease in selling price the monthly demand would increase by 250 units.

The variable costs of production for one unit of Product 'AS5' are as follows:

Direct materials	*₹ 8,925*
Direct labour	*₹ 5,975*
Variable overhead	*₹ 2,100*

APR is planning a digital marketing campaign during the introductory phase of product 'AS5'. The total cost of the digital marketing campaign is yet to be finalised with the marketing team. However, after deducting the cost of digital marketing campaign, the CEO requires a minimum profit of ₹ 1,26,25,000 for the introductory phase. The introductory phase of Product 'AS5' is expected to have a duration of three months. There are no other specific fixed costs associated with Product 'AS5'.

Required

(i) *CALCULATE the maximum cost of the digital marketing campaign to meet the CEO's profit requirement for the product 'AS5' introductory phase.*

Note: The Company will set the price for a unit of Product 'AS5' to maximise profit during the introductory phase.

If P = a - bx then MR = a - 2bx ***(6 Marks)***

(ii) *DISCUSS two reasons why it may not be appropriate to set the introductory price of Product 'AS5, using the assumptions contained in the profit-maximisation model you used in part (i).* ***(4 Marks)***

(b) *Rose Limited is a producer of A2 milk and a variety of dairy products that it sells under the brand name "ROSE, to various retail outlets across the city. The company operates on a financial year basis and begins its annual budgeting process in the last week of March when the Chief Executive Officer (CEO) establishes targets for total sales revenue and net operating income before taxes for the next financial year. The sales target is given to*

Marketing Department, where the Marketing Head, Charan formulates a sales budget in both units and value terms. Charan also estimates the cost of the marketing activities required to support the target sales volume and prepares a tentative marketing expense budget. The Operations Head uses the sales and profit targets and the tentative marketing expense budget to ascertain the amount that can be budgeted for purchases and office expenses. After estimating the amount required for office expenses, the Operations Head then forwards to the Purchases Department, the amount that is proposed to be utilised for purchases. Ms. Nisha who is in-charge of production and purchases develops a purchases plan that will acquire the required quantity of inventory when needed within the cost constraints set by the Operations Head.

However, despite having targets none of these departments has achieved their budgets in recent years. Sales often run below the target. Also, the profit target is hardly met since costs are not cut enough. In fact, costs often run above the original budget in all departments.

The CEO is concerned that the company had not been able to meet its sales and profit targets. He employed a consultant with considerable relevant industry experience. The consultant suggested a participatory budgeting approach where the marketing and production managers would be requested by the CEO to coordinate in order to estimate sales and purchases quantities.

Charan decided that he would make a beginning by looking at recent sales history, potential customers, and customers' spending patterns. Subsequently, he would intuitively forecast the best sales quantity and pass it to Ms. Nisha so she can estimate purchases quantity. Charan and Ms. Nisha did not want to fall short of the sales estimates, they gave themselves a little breathing room by lowering the initial sales estimates between 5% and 10%. As a result, they had to adjust the projected purchases as the year progressed, which changes the estimated ending inventory. They also made similar adjustments to expenses by adding at least 10% to the initial estimates.

Required

(i) *IDENTIFY the budgeting approach presently being followed.* ***(1 Marks)***

(ii) *EVALUATE why the company's original budget approach failed to achieve the CEO's sales and profit targets.* ***(2 Marks)***

(iii) *DISCUSS the key features of the participatory budgeting approach as recommended by the consultant.* ***(3 Marks)***

(iv) *EVALUATE why the sales estimates have been understated and projected purchases overstated by the marketing head and procurement manager under the new budget approach.* ***(2 Marks)***

(v) *EXPLAIN what is meant by budgetary slack.* ***(2 Marks)***

Answer

(a) (i) Calculation of the maximum cost of the digital marketing campaign to meet the profit requirement for the product's introductory phase.

Price at which demand is Zero:

	P	=	**a – bx**
⇒	₹21,000	=	a – (₹2,000/ 250) × 2,000
⇒	₹21,000	=	a – ₹16,000
⇒	a	=	**₹37,000***

**Can also be calculated by tabulating the selling price and quantity for different demand levels till demand is zero.*

The Marginal Cost of a unit of AS5 is ₹17,000/-

Now, Price Equation for 'AS5'

	P	=	a – bx
⇒	P	=	37,000 – (2,000 / 250) × x
	Revenue (R)	=	x × [37,000 – 8x]
⇒		=	$37,000x – 8x^2$
	Marginal Revenue (MR)	=	a – 2bx
⇒		=	37,000 – 2 × (8) × x
⇒		=	37,000 – 16x
	Marginal Cost (MC)	=	17,000

Profit is Maximum where Marginal Revenue (MR) equals to Marginal Cost (MC)

⇒	37,000 – 16x	=	17,000
⇒	x	=	**1,250 units**

By Putting the Value of 'x' in Price Equation, Value of 'P' is Obtained

⇒	P	=	37,000 – (2,000 / 250) × x
⇒		=	37,000 – 8 × 1,250
⇒		=	**₹27,000**

At Selling Price of ₹27,000 APR's Profit will be Maximum.

Value of 'Mkt. Cost' for the introductory phase is Obtained as under:

	(Selling Price p.u. – Variable Cost p.u.) × Qty. – Mkt. Cost	=	Desired Profit
⇒	**(27,000 – 17,000) × 1,250 × 3** – Mkt. Cost	=	1,26,25,000
⇒	**Mkt. Cost**	=	**2,48,75,00**

Maximum cost of the digital marketing campaign to meet the profit requirement for the product's introductory phase would be ₹ 2,48,75,000.

Alternatively

	₹
Sales 1,250 × 3 × ₹27,000	10,12,50,000
Less: Variable cost 1,250 × 3 × ₹17,000	6,37,50,000
Contribution	**3,75,00,000**
Less: Desired Profit	1,26,25,000
Amount available for digital marketing campaign	**2,48,75,000**

(ii) There are many unknowns, uncertainties, and usually unforeseeable risks involved in bringing a new product to market. ***Usually, demand has to be generated during the product's introduction stage. However, it depends on the product's complexity, its degree of novelty, its fit into consumer needs, and the presence of competitive substitutes of one form or another***. The profit maximisation model assumes that price is the only determinant of demand, as stated earlier it is extremely difficult to determine a demand factor with any degree of accuracy at this stage, therefore APR may end up making the wrong pricing decision. Rather than aiming for maximum profit, APR may try to achieve target profit at this stage.

(b) (i) The budgetary approach presently followed by Rose Limited is **top-down approach (or imposed style)**. The CEO established the target for sales and net operating income before taxes for the next financial year. This is then communicated to the Marketing Department and Operations. The respective heads of department in turn prepare departmental budget based on the targets set by the CEO. This is the feature of top-down budget approach.

(ii) Possible reasons for the failure of the top-down approach –

(a) This approach suffers from the **risk of being inaccurate**. The assumptions and expectations of the management about business growth may be inaccurate. If the dairy industry in which Rose Limited operates undergoes constant change, the assumptions made by the CEO for setting the sales target may become redundant quickly.

(b) In this approach, the **budget figures are imposed** on the sales personnel and other staff by the CEO. There is very little employee participation in preparing the budget. Hence, the budget will be of no interest for employees since their involvement is ignored. Moreover, employees are responsible for achieving the target set out as per the budget. However, the budget is controlled by the CEO. Hence responsibility without authority creates a negative working environment. This adversely impacts employee motivation to achieve budget targets.

(iii) Features of participative budget (or bottom up approach) recommended by the consultant.

As per the participative budget approach, the marketing and production managers would be requested by the CEO to co-ordinate to estimate the sales and purchase quantities.

(a) This approach will create **a sense of responsibility** among employees and fosters creativity. The budget goals could become the managers' personal goals thereby ***promoting goal congruence in the organization***.

(b) The sales and production managers have **intricate knowledge of the business**, since they are more involved with the day to day operations as compared to the CEO. This knowledge will perhaps enhance the budgeting process and help come up with a ***more realistic budget target***.

(c) The **managers are being given the authority** to provide suggested targets for the budget and along with that they have the responsibility to ensure that the targets are met. **This is a more *motivational approach* as compared to the top-down approach.**

(iv) Charan has lowered the initial sales estimate (as per the new approach) between 5% to 10%. Similarly, Ms. Nisha has increased the cost estimates by at least 10% of the initial estimates. *Under the participative approach, the budget targets are determined by the employees. Hence, they have a greater responsibility of achieving them. The problem with this approach is that the employees can create budgetary slack and manipulate the figures to achieve their personal goals.*

By lowering the sales estimate, Charan has lowered the sales target that he is responsible to achieve. Hence, the effort involved in meeting the modified budget target is lesser. Also, even if the original target (before adjustment) is achieved, *it will seem to look as if Charan has over-achieved the budget sales target* since evaluation will be done by comparing performance with the modified (lower) sales target. This is done to get personal benefits in terms of bonus or promotion from the company.

By inflating the cost estimate, Ms. Nisha has given **some buffer for the goal** she has to achieve. She has projected a higher cost estimate. This targeted cost can be achieved with lesser effort at cost management by her. Also, even if the original cost target (before adjustment) is achieved, *it will seem to look as if Ms. Nisha has taken extra effort at controlling cost*. This is because evaluation will be done by comparing her performance with the modified (inflated) cost target. This is done to get personal benefits in terms of bonus or promotion from the company.

Budgetary slack

Allowing managers to set their own targets will introduce slack targets. Managers working in an environment where they are expected to meet the budget targets often try to introduce slack into budget. For example, Charan introduced budget slack by lowering the achievable sales target. Ms. Nisha introduced budget slack by inflating the achievable cost target. **This slack makes the budget easier to achieve**. However, introducing budget slack can have a detrimental impact on the evaluation of actual performance of the managers.

Instead, where there is more relaxed attitude, or when other factors are considered alongside the analysis of variances, managers are general less inclined to introduce slack.