

A1	1	(a) Reason – Target profit per statue is 25% of ₹45,000. Therefore, target profit is ₹11,250 per statue. Hence, target cost = selling price – target profit = ₹45,000 - ₹11,250 = ₹33,750 per statue. Option (b) ₹36,000 calculates that cost by taking profit to be 25% of cost i.e. 20% of selling price. Therefore, target cost is ₹45,000 - ₹9,000 = ₹36,000 per statue. Options (c) and (d) are incorrect options.																
	2	(b) Reason – Option (b) ₹42,500 per statue is the correct option. The calculation is given: <table><tr><td>Cost</td><td>Amount (₹)</td></tr><tr><td>Design cost</td><td>5,00,000</td></tr><tr><td>Direct materials</td><td>20,00,000</td></tr><tr><td>Direct manufacturing labour</td><td>25,00,000</td></tr><tr><td>Variable manufacturing overhead</td><td>20,00,000</td></tr><tr><td>Fixed manufacturing overhead</td><td>5,00,000</td></tr><tr><td>Marketing</td><td><u>10,00,000</u></td></tr><tr><td>Total Estimated Cost</td><td>8,50,000</td></tr></table> Estimated Cost per statue = ₹85,00,000 / 200 statues = ₹42,500 per statue.	Cost	Amount (₹)	Design cost	5,00,000	Direct materials	20,00,000	Direct manufacturing labour	25,00,000	Variable manufacturing overhead	20,00,000	Fixed manufacturing overhead	5,00,000	Marketing	<u>10,00,000</u>	Total Estimated Cost	8,50,000
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	3	(c) Reason – With 60% saving in direct material cost and 50% saving in direct manufacturing labour, the revised estimate cost per statue if value engineering is adopted would be: <table><tr><td>Cost</td><td>Amount (₹)</td></tr><tr><td>Design cost</td><td>5,00,000</td></tr><tr><td>Direct materials</td><td>8,00,000</td></tr><tr><td>Direct manufacturing labour</td><td>12,50,000</td></tr><tr><td>Variable manufacturing overhead</td><td>20,00,000</td></tr><tr><td>Fixed manufacturing overhead</td><td>5,00,000</td></tr><tr><td>Marketing</td><td><u>10,00,000</u></td></tr><tr><td>Total Estimated Cost</td><td>60,50,000</td></tr></table> Estimated Cost per statue = ₹60,50,000 / 200 statues = ₹30,250 per statue.	Cost	Amount (₹)	Design cost	5,00,000	Direct materials	8,00,000	Direct manufacturing labour	12,50,000	Variable manufacturing overhead	20,00,000	Fixed manufacturing overhead	5,00,000	Marketing	<u>10,00,000</u>	Total Estimated Cost	60,50,000
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	4	(b) Reason – The target profit per statue is 25% of ₹50,000. Therefore, target profit is ₹12,500 per statue. Hence, target cost = selling price – target profit = ₹50,000 - ₹12,500 = ₹37,500 per statue.																
	5	(d) Reason – The revised estimate cost per statue would be: <table><tr><td>Cost</td><td>Amount (₹)</td></tr><tr><td>Design cost</td><td>5,00,000</td></tr><tr><td>Direct materials</td><td>20,00,000</td></tr><tr><td>Direct manufacturing labour</td><td>25,00,000</td></tr><tr><td>Variable manufacturing overhead</td><td>20,00,000</td></tr><tr><td>Fixed manufacturing overhead</td><td>5,00,000</td></tr><tr><td>Marketing</td><td><u>11,00,000</u></td></tr><tr><td>Total Estimated Cost</td><td>86,00,000</td></tr></table> Estimated Cost per statue = ₹86,00,000 / 200 statues = ₹43,000 per statue.	Cost	Amount (₹)	Design cost	5,00,000	Direct materials	20,00,000	Direct manufacturing labour	25,00,000	Variable manufacturing overhead	20,00,000	Fixed manufacturing overhead	5,00,000	Marketing	<u>11,00,000</u>	Total Estimated Cost	86,00,000
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	6	(a)																

		Reason – Refer below given calculations. Jay the product manager's proposal of adopting value engineering as per (4) is more profitable as compared to Raj the designer's proposal. Adopting value engineering may be encouraged. <u>At the same time, designer Raj's opinion is also critical since it affects the durability of the product, which also impacts the long run demand for these products.</u> Hence, the management of Art Décor has to take strategic decisions on the quality of statues it wants to launch. Pricing will also be affected by the external competitive market conditions. <table><tr><td>Particulars</td><td>Estimates as per value engineering (3)</td><td>Estimates as per marketing spend (4)</td></tr><tr><td>Selling price per statue</td><td>₹45,000</td><td>₹50,000</td></tr><tr><td>Estimated cost per statue</td><td>₹30,250</td><td>₹43,000</td></tr><tr><td>Profit per statue</td><td>₹14,750</td><td>₹7,000</td></tr></table>	Particulars	Estimates as per value engineering (3)	Estimates as per marketing spend (4)	Selling price per statue	₹45,000	₹50,000	Estimated cost per statue	₹30,250	₹43,000	Profit per statue	₹14,750	₹7,000				
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A2	1	(b) The correct answer is statements ii and iii are true. Conversion rate is calculated as [service requests lodged / enquiries received] * 100 <table><tr><td>Conversion rate of enquiries into requests</td><td>Existing</td><td>New</td><td>Existing plus new customers</td></tr><tr><td>Enquiries</td><td>12,000</td><td>8,000</td><td>20,000</td></tr><tr><td>Requests</td><td>10,000</td><td>7,500</td><td>17,500</td></tr><tr><td>Conversion rate of enquiries into requests</td><td>83.33%</td><td>93.75%</td><td>87.50%</td></tr></table>	Conversion rate of enquiries into requests	Existing	New	Existing plus new customers	Enquiries	12,000	8,000	20,000	Requests	10,000	7,500	17,500	Conversion rate of enquiries into requests	83.33%	93.75%	87.50%
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	2	(d) The correct answer is the conversion rate of inquiries into service requests and retention of existing customers fall into the Competitiveness dimension.																
	3	(b) The correct answer is statements i, iii and iv are true regarding customer complaints. The number of complaints received is a measure of quality of service, higher the complaints lower the quality of service. The company received 2,000 complaints this year as against 1,600 last year. This is a 25% (400/ 1,600) increase. It is possible that lower quality of service resulted in a lower retention due to which the number of existing customers fell by 1,000 this year.																
	4	(d) The correct answer is statements ii, iii and iv are true regarding resolution of customer complaints. Resolution of customer complaints is a measure of flexibility in the operations of the company. Ability to handle and resolve multiple complaints builds flexibility. The ratio of complaints resolved to total complaints has remained 95% (this year 1,900 / 2000 complaints and last year 1,520 / 1,600 complaints).																
	5	(a) The correct answer is i and iv. Average service performed by an employee is a measure of resource utilization. It shows efficiently the human resource is being used. The average service performed for home repairs is 70 per employee (14,000 activities / 200 employees) while the average service performed for appliance repair is 100 per employee (5,000 activities / 50 employees).																
	6	(b) The correct answer is the gross profit over annual sales is measure for financial dimension.																
A3	1	(b)																

		The correct answer is Customers and Board of Directors. Customers who are professional car racers will be directly impacted by JPY's decision as it affects both their training and career performance. JPY Motors manufactures cars primarily for professional car racers, hence customers have both high power and high influence over this objective. The change will improve market share in this niche market segment and will have substantial financial impact on the company. The Board of Directors as stakeholders will have high power and high influence over this objective.
	2	(a) The correct answer is Current suppliers of key components and Environment activist groups. Current suppliers of key components will be adversely impacted by this decision since procurement for the new engine model will happen from Yokohama. However, despite having high interest, they do not have the power to influence this decision directly. Environment activist groups have a high interest since the fuel composition impacts the environment directly, which in the case of this change will be a positive impact due to the sustainable nature of the fuel. However, they too do not have the power to influence the decision directly.
	3	(d) The correct answer is Government regulators. They have high power since the fuel composition change can be implemented only with their approval. However, they are not directly interested in the objective.
	4	(a) The correct answer is Employees at the assembly line. While manufacturing process undergoes a change due to change in engine design, there will be no significant variation in the assembly line operations for the new model. Most of the employees in the assembly line are hired on contractual basis and do not have any union to represent them. Hence assembly line employees have low power and low interest in this decision.
	5	(b) The correct answer is low power and high interest group. This group will comprise of current suppliers of key components and environment activist groups. While they have low power, they can join more powerful groups like the customers (professional car racers) and then try to influence the decision. By keeping the group informed, the company is showing consideration towards this group. This may make them less inclined to try to indirectly influence by joining forces with other groups. Similarly, environment activist groups do not have direct power to influence the decision. However, they are in a position to influence indirectly say by influencing the news media perception about the change. Hence, this group should also be given consideration and be kept informed about the change while it is being implemented.
	6	(a) The correct answer is high power and low interest group. These would be the government regulators who need to give approval for the fuel composition change. They have high power since the fuel composition change can be implemented only with their approval. While they are not directly interested in this decision, they have the power to influence it. Hence, the company should ensure that relevant information is provided to keep them satisfied while implementing the change.
A4	1	(b) The goal of the 7-S framework is to depict how effectiveness can be achieved in an organization through the interactions of seven key and interconnected elements that are Structure, Strategy, Skill, System, Shared Values, Style, and Staff. Since all the S of 7-S impact each other due to interconnectedness, hence if one area of the 7-S framework needs adjusting or tweaking for business success, the other S elements are need adjusting too.

		The seven components of McKinsey's 7-S model are divided into two groups: hard S and soft S. The Hard S elements are Strategy, Structure, and Systems. The Soft S elements are Style, Staff, Skills, and Shared values. Since there is substantial involvement of human element in Soft S elements, which make change management relatively difficult; further Soft S elements are highly intangible and invisible in nature hence identification of underlying sub-set of Soft S elements are relatively difficult. Therefore, Hard S elements are easily identified and influenced by management comparing to Soft S.
	2	(d) Strategy, Structure, and Systems are feasible and easy to identify. These can be found in strategy statements, corporate plans, organizational charts, and other documentations. They are easier to change than the others. Therefore, called Hard S elements. While Skills, Staff, Style, and Shared Values are called Soft S elements.
	3	(d) Reason - Understanding worker termination process is not covered by any S element of the 7-S Framework. While rest three are objectives or use-cases of 7-S.
	4	(c) Reason - Strategy, Structure, and Systems are feasible and easy to identify. These can be found in strategy statements, corporate plans, organizational charts, and other documentations. They are easier to change than the others. Therefore, called hard S elements. While Skills, Staff, Style, and Shared Values are not change-feasible. These are harder to describe since capabilities, values and elements of corporate culture are continuously developing and changing. They are highly determined by the people at work in the organization. Hence these are harder to change directly, and typically take longer to do so. Therefore, called soft S elements. Note - Effective companies, however, tend to pay as much attention to these soft S factors as to the hard S's.
	5	(c) All the elements of 7S framework have equal importance, while shared values are core to rest of elements. Hard and Soft S are different from each other only in respect to identification and influence that can be exercised by the management.
	6	(d) Reason - The change implementation stage is the most critical stage of any change initiative, and only well-implemented changes will avoid resistance to change and prevent overall change failures. Hence change agents can effectively implement the McKinsey 7-S model using a top-bottom approach. Moreover, the organisation should identify internal change agents or hire change consultants best suited to implement your changes. Note - A change agent, or agent of change, is someone who promotes and enables change to happen within any group or organization. In business, a change agent is an individual who promotes and supports a new way of doing something within the company.
B1	1	(d) The correct answer is all of the above are true when Division A has 8,000 hours of actual capacity.

	Division A needs 10,000 hours for external sales and 2,400 hours for meeting Division B's request. Hence the total hours required is 12,400. Actual capacity is 8,000 hours. Hence there is a shortfall of 4,400 hours. Since labour hours is the constraint, it should be used optimally for which the contribution per labour hour has to be calculated. If Division A has to cater to the request from Division B, it has to account for opportunity cost from lost sales. <table><tr><th>Particulars</th><th>X</th><th>Y</th><th>Z</th></tr><tr><td>Selling Price per unit</td><td>₹96</td><td>₹92</td><td>₹80</td></tr><tr><td>Less: Variable Cost per unit</td><td>₹33</td><td>₹24</td><td>₹28</td></tr><tr><td>Contribution per unit</td><td>₹63</td><td>₹68</td><td>₹52</td></tr><tr><td>Labour hours per unit</td><td>6</td><td>8</td><td>4</td></tr><tr><td>Contribution per hour</td><td>₹10.50</td><td>₹8.50</td><td>₹13.00</td></tr><tr><td>Ranking high to low</td><td>II</td><td>III</td><td>I</td></tr></table>	Particulars	X	Y	Z	Selling Price per unit	₹96	₹92	₹80	Less: Variable Cost per unit	₹33	₹24	₹28	Contribution per unit	₹63	₹68	₹52	Labour hours per unit	6	8	4	Contribution per hour	₹10.50	₹8.50	₹13.00	Ranking high to low	II	III	I
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2	(c) The correct answer is X - 800 units, Y - 250 units and Z - 300 units. The optimum production mix for external sales is calculated as – Total hours available = 8,000 hours. The products are ranked as per their contribution per hour. Product Z yields the maximum contribution per labour hour, followed by X and Y (Refer to earlier part). Hence, hours will first be allotted to Z, then to X and the last to Y. <table><tr><th>Priority</th><th>External Sales</th><th>Quantity units</th><th>Hours per unit</th><th>Total Hours needed</th><th>Remaining hours</th></tr><tr><td>1</td><td>Z</td><td>300</td><td>4</td><td>1,200</td><td>6,800</td></tr><tr><td>2</td><td>X</td><td>800</td><td>6</td><td>4,800</td><td>2,000</td></tr><tr><td>3</td><td>Y</td><td>250</td><td>8</td><td>2,000</td><td>NIL</td></tr></table> The entire demand of Product Z will be produced first. This requires 1,200 hours. Out of the balance 6,800 hours, Product X will require 4,800 hours. This leaves a balance of 2,000 hours for Product Y. Product Y requires 8 hours per unit. Hence, maximum production of product Y = 2,000 hours/ 8 = 250 units.	Priority	External Sales	Quantity units	Hours per unit	Total Hours needed	Remaining hours	1	Z	300	4	1,200	6,800	2	X	800	6	4,800	2,000	3	Y	250	8	2,000	NIL				
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2	X	800	6	4,800	2,000																								
3	Y	250	8	2,000	NIL																								
3	(d) Contribution lost from reduced sales of Y = ₹17,000 and X = ₹4,200. If Division A accepts to produce 300 units of Y for Division B, the total hours required for internal sales would be 2,400 hours. This can be catered to by curtailing its external sales. 2,000 hours from production of external sales of Product Y is first diverted and the balance 400 hours are diverted from production of Product X. Hence this results in lost contribution, an opportunity cost that has to be included in transfer pricing. Contribution Lost from Reduced External Sales – = Product Y (2,000 hours × contribution per hour of ₹8.5) + Product X (400 hours × contribution per hour of ₹10.5) = ₹17,000 + ₹4,200 = ₹21,200																												
4	(c) If Division A accepts to produce 300 units of Y for Division B, what should be the transfer price range that can be charged to Division B would be ₹94.66 per unit.																												

		On a per unit basis, lost contribution works out to ₹21,200/ 300 units = ₹70.66. Please refer to earlier parts for explanation for lost contribution. Transfer Price = Marginal Cost p.u. + Contribution Lost from Reduced External Sales = ₹24 + ₹70.66 = ₹94.66 Since Division B can buy at ₹45, it would be cheaper to purchase the component from outside.	
B2	1	(d)	
		Particulars	Amount ₹
		Difference in Operating Cost per battery (higher expense incurred by buyer) Bataid = ₹2 per hour Bat 1 = ₹1 per hour For 8,000 hours = 8,000 × (₹2 - ₹1)	8,000
	2	(d)	
		Particulars	Amount ₹
		Savings to buyer due to more stable performance of battery Cost of battery failing = ₹1,00,000 Difference in probability of battery failure (1% vs 11%) = 10% Lower cost of failure to buyer = 10% × ₹1,00,000	10,000
	3	(b)	
		Particulars	Amount ₹
		Value Differential of using Bataid (MCQ 2 – MCQ 1)	2,000
	4	(d)	
		Particulars	Amount ₹
		1. Difference in Operating Cost per battery (higher expense incurred by buyer) Bataid = ₹2 per hour Bat 1 = ₹1 per hour	8,000

		For 8,000 hours = $8,000 \times (\text{₹}2 - \text{₹}1)$	
		2. Savings to buyer due to more stable performance of battery Cost of battery failing = ₹1,00,000 Difference in probability of battery failure (1% vs 11%) = 10% Lower cost of failure to buyer = $10\% \times \text{₹}1,00,000$	10,000
		3. Value Differential of using Bataid (Step 2 – Step 1)	2,000
		4. Price of per unit Bat 1 battery (cost of next best alternative)	20,000
		5. True economic value of per unit Bataid	22,000
B3	1	(b) The correct answer is upstream supply chain management. Procurement of good quality milk from dairy farmers refers to procurement of raw materials from suppliers, which is upstream supply chain management.	
	2	(c) The correct answer is downstream supply chain management. Distribution of milk within expiry date is a post-manufacturing activity that deals with the movement of finished goods to the retailer and therefrom the final customer.	
	3	(a) The correct answer is value chain management. A 1 essentially wants to do vertical integration to ensure that the quality of milk produced can be controlled. This decision relates to the procurement function of Porter's Value Chain Analysis.	
	4	(d) The correct answer is Triple Bottom Line. This is framework that organizations can adopt to ensure that their operations are being carried out in sustainable manner with respect to Profit, People and the Planet.	
B4	1	(d) Licensing involves obtaining permission from an entity (licensor) to manufacture and sell one or more of its products (or even rendering services on behalf of said licensor) within a defined market area for a set period in return for a royalty. Hence if Nova decides to be licensor of their hybrid-bikes by allowing other automobile manufacturers to manufacture and sell its bikes, may expand its market reach without sparing any of its resources. Instead, they will get royalty payment (undoubtedly there will no control on quality directly and technology is also transferred to licensees).	
	2	(b) Reason - A strategic alliance is an arrangement between two or more enterprises to undertake a mutually beneficial project while each retains its independence. Strategic Alliance agreement is less complex and less binding than a joint venture. In joint venture two businesses pool resources to create a separate business entity, whereas in case	

		strategic alliance they retain their independence. So NAL through strategic alliance can control the quality while. On the other hand, setting up plants in other countries would require huge capital outlay, whereas licensing lead not control of NAL over quality. Note - Since independence is retained under the Strategic Alliance, hence it become difficult to put common performance measures in place and to collect and analyse management information for same because security of confidential information is a concern.
	3	(b) Reason – Limitations that become root cause of problems in measuring and managing the performance of JV. ▪ Establishing objective in is never easy, because the parties involved in complex business structures may have different values, vision, risk appetites and timescales. This shortcoming highlights the inevitable need of goal congruence. ▪ The approaches and attitude of parties towards factors that are critical for performance such as quality, control and risk, etc. may be different, hence a common minimum programme needs to be devised. ▪ Since different sets of resources, skills and knowledge contributed by parties, hence assigning accountability for performance is key issue. Accountability shall be clearly established and communicated at the outset. ▪ Lack of trust is a critical aspect, because for performance measurement and evaluation detailed information is required, whereas parties of complex business structures may be hesitant to share information freely if they lack trust in each other. Control and reporting framework shall be mutually decided and climate of trust shall be foster by opting compatible management style. ▪ Cultural conflicts may result in poor performance, hence shared values shall be redefined so that they may be more liberal and serve the purpose.
	4	(c) Reason – Bangladesh has a rapidly growing market for environmentally friendly bikes, hence managing marketing mix to drive higher margin (through high perceived value) will be easy for JV of PAL and AAL; therefore, marketing and sales activities shall be substantial source of enlarged value.
C1	1	(c) Reason – The maximum score allotted is 100 (being 43 from Defects, 45 from Mistake and 12 from Symptoms of trouble). For a firm to be cleared as healthy, its overall score must be less than the maximum acceptable score of 25 (with 10 and 15 being the maximum acceptable scores in defects and mistakes respectively). If a firm scores anything in Symptoms of trouble this is immediately seen as an indicator that the firm is at risk. A firm that scores more than 25 overall, even if it scores below the individual thresholds in either of Defects (10) or Mistake (15), would still be considered at risk. In case of 1st (i) firm Symptoms of trouble score is 4, while in case 4th (iv) firm Defects score is more than 10 whereas in case of 5th (v) firm Mistake scores are 30, which more than acceptable limit of 15, hence Firm 1 (i), 4 (iv) and 5 (v) are at risk. On contrary firm 2 (ii) and 3 (iii) are healthy.
	2	(d) Reason – The maximum score allotted is 100 (being 43 from Defects, 45 from Mistake and 12 from Symptoms of trouble). For a firm to be cleared as healthy, its overall score must be less than the

		maximum acceptable score of 25 (with 10 and 15 being the maximum acceptable scores in defects and mistakes respectively). If a firm scores anything in Symptoms of trouble this is immediately seen as an indicator that the firm is at risk. A firm that scores more than 25 overall, even if it scores below the individual thresholds in either of Defects (10) or Mistake (15), would still be considered at risk. In case of 1st (i) firm Symptoms of trouble score is 4, while in case 4th (iv) firm Defects score is more than 10 whereas in case of 5th (v) firm Mistake scores are 30, which more than acceptable limit of 15, hence Firm 1 (i), 4 (iv) and 5 (v) are at risk. On contrary firm 2 (ii) and 3 (iii) are healthy.
	3	(c) by definition. Warning ins not a dimension of this model.
C2	1	(b) The correct answer is No, 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. Hence, Nutty Bites has to take steps to address the problem.
	2	(d) The correct answer is Profitability from sale of the products for the current month (short run) will be impacted. In the very immediate future, as mentioned the span of current month, it is unlikely that the profit will be impacted. However, in the long-term health and safety concerns about the product can lead to potential financial penalties, legal issues that can impact the brand image.
	3	(c) The correct answer is Increase in selling price of products to recoup the cost of making proposed changes is a financial consideration. The rest are non-financial considerations.
C3	1	(a) $\text{Efficiency Variance} = \text{Cost Impact of undertaking activities more/ less than standard} = (21 \text{ deliveries}^* - 19 \text{ deliveries}) \times ₹200 = ₹400 \text{ F}$
	2	(a) $\text{Expenditure Variance} = \text{Cost impact of paying more/ less than standard for actual activities undertaken} = 19 \text{ deliveries} \times ₹200 - ₹3,900 = ₹100 \text{ (A)} * 20 \text{ deliveries/ } 2,000 \text{ units} \times 2,100 \text{ units}$
C4	1	(a) Medicare aims to have zero defective unit sales. This implies that they wish to reduce cost of sale returns, warranty costs, cost of product recalls and any other cost incurred due to a complaint from the customer. The other costs namely internal failure costs, preventive costs and appraisal costs are costs incurred at the discretion of Medicare. Taking sufficient preventive and appraisal measures and also ensuring that defects are detected before the products reach customers by reworking on defects or scrapping them altogether, would all put together ensure that cost incurred on defective goods due to customer complaints is kept at minimum.
	2.	(b) The correct option is cost of product returns and replacement. Where the sales to customers are expected to be of zero defects, there should ideally be no cost of product returns and replacement cost. Any such incidence captured in the KPI Dashboard should then be investigated by Medicare to detect any weakness in the area identified as critical to success. Training hours imparted to manufacturing staff about quality control is a preventive cost, not directly related to zero defective sales, although it aims at reducing defects by imparting appropriate training to the staff. Cost of inspection and testing aims to find out defects before the product reaches the customer, it is an appraisal cost. Quality certifications from external agencies is an appraisal cost incurred to improve customer perception about the quality of the product. Quality certification by itself does not prevent defects or ensures zero defective sales.