Paper 15 - Business Strategy and Strategic Cost Management

Whenever necessary, suitable assumptions should be made and indicate in answer by the candidates.
Working Notes should be form part of your answer

Section A
Question No. 1 & 2 are compulsory. Answer any two questions from the rest.

1. Agrico Ltd. was in chemical, fertiliser and pesticide business since 2005. The company had reasonable earnings till 2010. For the next 3 years, sales in all the divisions went on declining and by 2013, the company was in the red. The Managing Director was thinking of internal benchmarking as a possible way out. A senior executive suggested that functional benchmarking would be more appropriate. The Finance Manager was of the view that the problem was that of economic recession in the relevant product lines. The M.D. was unable to decide on the matter.

(a) What is benchmarking? Discuss different type of benchmarking with their appropriate uses. [10]

(b) Suggest the most suitable benchmarking for Agrico Ltd. with justification. [5]

Answer 1(a):
Benchmarking is the process of identifying "**best practice**" in relation to both products (including) and the processes by which those products are created and delivered. The search for "best practice" can take place both inside a particular industry, and also in other industries (for example - are there lessons to be learned from other industries?).

Types of Benchmarking
There are a number of different types of benchmarking, as summarised below:

Type	Description	Most Appropriate for the Following Purposes
Strategic Benchmarking	Where businesses need to improve overall performance by examining the long-term strategies and general approaches that have enabled high-performers to succeed. It involves considering high level aspects such as core competencies, developing new products and services and improving capabilities for dealing with changes in the external environment. Changes resulting from this type of benchmarking may be difficult to implement and take a long time to materialise	Re-aligning business strategies that have become inappropriate

Performance or Competitive Benchmarking	Businesses consider their position in relation to performance characteristics of **key products and services**. Benchmarking partners are drawn from the same sector. This type of analysis is often undertaken through trade associations or third parties to protect confidentiality.	Assessing relative level of performance in key areas or activities in comparison with others in the same sector and finding ways of closing gaps in performance
Process Benchmarking	Focuses on improving specific **critical processes and operations**. Benchmarking partners are sought from best practice organisations that perform similar work or deliver similar services. Process benchmarking invariably involves producing process maps to facilitate comparison and analysis. This type of benchmarking often results in short term benefits.	Achieving improvements in key processes to obtain quick benefits
Functional Benchmarking	Businesses look to benchmark with partners drawn from different business sectors or areas of activity to find ways of improving similar functions or work processes. This sort of benchmarking can lead to innovation and dramatic improvements.	Improving activities or services for which counterparts do not exist.
Internal Benchmarking	Involves benchmarking businesses or operations from within the same organisation (e.g. business units in different countries). The main advantages of internal benchmarking are that access to sensitive data and information is easier; standardised data is often readily available; and, usually less time and resources are needed. There may be fewer barriers to implementation as practices may be relatively easy to transfer across the same organisation. However, real innovation may be lacking and best in class performance is more likely to be found through external benchmarking.	Several business units within the same organisation exemplify good practice and management want to spread this expertise quickly, throughout the organisation
External Benchmarking	Involves analysing outside organisations that are known to be best in class. External benchmarking provides opportunities of learning from those who are at the "leading edge". This type of benchmarking can take up significant time and resource to ensure the comparability of data and information, the credibility of the findings and the development of sound recommendations.	Where examples of good practices can be found in other organisations and there is a lack of good practices within internal business units

International Benchmarking	Best practitioners are identified and analysed elsewhere in the world, perhaps because there are too few benchmarking partners within the same country to produce valid results. Globalisation and advances in information technology are increasing opportunities for international projects. However, these can take more time and resources to set up and implement and the results may need careful analysis due to national differences	Where the aim is to achieve world class status or simply because there are insufficient "national" businesses against which to benchmark.

Answer 1 (b):

As per the given situation it seems internal benchmarking will be appropriate for the company for the following reasons :

Internal benchmarking is the process by which a company or corporation looks within the realm of its own business to try and determine the best methods for conducting business. This process is closely associated with the concept of finding best practices, which means that the company is conducting its operations in a way which maximizes the results of its workers' efforts. Doing this through internal benchmarking is an efficient endeavor since a business has unique access to its own information to determine best practices. It might be useful at times though to look outside the business for benchmarking efforts to make sure that there are no methods left unstudied.

Businesses must find ways to measure the effectiveness of its practices. In some cases, this can be as simple as studying the bottom line and adjusting costs and pricing. At times, however, it might be more useful to look at the operational aspects of the business. This process can show business managers where things are working well and where operations might be lacking. Central to this effort is the practice of internal benchmarking, which is when a company looks inward to find the answers to its problems.

The practice of internal benchmarking begins with setting some level of performance that a company wants a certain aspect of its business to reach. This level is the benchmark, and it is the standard to which the company can aspire. Any part of the business that falls below that standard must find ways to rectify the gap in performance.

Conducting such an analysis through internal benchmarking requires finding those aspects of the business that are performing up to the required levels. For example, a company might be happy with the performance of the accounting department, and it wants to see that performance throughout the entirety of business operations. With that in mind, a thorough study of the accounting department might shed some light on practices that other departments should emulate.

There are certain advantages to analyzing business problems with the use of internal benchmarking. By keeping a critical eye on its own business, managers can have access to every detail of operations, something that wouldn't occur if they were looking outward. In addition, an internal review might be more realistic in terms of a company's capabilities and limitations. The downside of taking such a narrow view is that a company might miss out on some methods, which are used by other companies or even competitors, that could improve its own practices.

2. Fifty years ago, the typical automobile manufacturing companies purchased most of their parts from other manufacturers. They did little more than assemble the parts into complete

automobiles. Currently many manufacturers of automobiles, large ones mainly, manufacture 75 to 80 p.c. of the parts that go into a typical automobile.

(a) Discuss what kind of business strategy the company is taking.

(b) What are the advantages and disadvantages of the said strategy?

(c) Give possible reasons underlying this shift towards more integrated production. [3 + 6 + 6]

Answer 2(a):

Background integration is a type of vertical integration in which a business falling later in a supply chain integrates with a business falling earlier in a supply chain. It is when a distributor purchases a manufacturer or a manufacturer purchases a supplier.

For example, if Apple integrates with Intel, it will be a backward integration. Apple is a manufacturer of computers and falls at a later stage in the supply chain while Intel is a supplier of processors and falls earlier in the supply chain. From the definition we follow that acquisition of a supplier by a manufacturer is backward integration.

So, the company y is taking backward integration route.

Answer 2(b):

Backward Vertical Integration potentially offers the following advantages:

- Reduce transportation costs if common ownership results in closer geographic proximity.
- Improve supply chain coordination.
- Provide more opportunities to differentiate by means of increased control over inputs.
- Capture upstream profit margins.
- Increase entry barriers to potential competitors, for example, if the firm can gain sole access to a scarce resource.
- Facilitate investment in highly specialized assets in which upstream players may be reluctant to invest.
- Lead to expansion of core competencies.

While some of the benefits of backward vertical integration can be quite attractive to the firm, the drawbacks may negate any potential gains. Backward vertical integration potentially has the following disadvantages:

- Capacity balancing issues. For example, the firm may need to build excess upstream capacity to ensure that its downstream operations have sufficient supply under all demand conditions.
- Potentially higher costs due to low efficiencies resulting from lack of supplier competition.
- Decreased flexibility due to previous upstream investments. (Note however, that flexibility to coordinate vertically-related activities may increase.)
- Decreased ability to increase product variety if significant in-house development is required.
- Developing new core competencies may compromise existing competencies.
- Increased bureaucratic costs.

Answer 2 (c):

A company exhibits **backward vertical integration** when it controls subsidiaries that produce some of the inputs used in the production of its products. A form of vertical integration that involves the purchase of suppliers. Companies will pursue backward integration when it will result in improved efficiency and cost savings. For example, backward integration might cut transportation costs, improve profit margins and make the firm more competitive.

For example, an automobile company may own a tire company, a glass company, and a metal company. Control of these three subsidiaries is intended to create a stable supply of inputs and ensure a consistent quality in their final product. It was the main business approach of Ford and other car companies in the 1920s, who sought to minimize costs by integrating the production of cars and car parts as exemplified in the Ford River Rouge Complex. Another simple example of backward vertical integration strategy is an ice cream company that buys a dairy farm. The company requires milk to make ice cream and either can buy milk from a dairy farm or other milk supplier or could own the dairy farm itself. This ensures that it will have a steady supply of milk at its disposal and that it will pay a reasonable price. This can protect the ice cream maker in the event that there are several other buyers vying for the same milk supply.
Backward integration strategy is most beneficial when:

- Firm's current suppliers are unreliable, expensive or cannot supply the required inputs.
- There are only few small suppliers but many competitors in the industry.
- The industry is expanding rapidly.
- The prices of inputs are unstable.
- Suppliers earn high profit margins.

3. (a) Distinguish between 'Strategy' and 'Policy'. [3]

(b) Explain the significance of Strategy Evaluation. [3]

(c) What are the problems of strategy evaluation? [4]

Answer 3 (a):
Strategy: Strategy refers to the determination of the purpose or mission and the basic long-term objectives of an enterprise, and the adoption of courses of action and allocation of resources necessary to achieve these aims. Therefore, objectives are a part of strategy formulation.

Policy: Policies are general statements or understandings that guide managers thinking in decision making. They ensure that decisions fall within certain boundaries. They usually do not require action but are intended to guide managers in their commitment to the decision they ultimately make. The essence of policy is discretion. Strategy, on the other hand, concerns the direction in which human and material resources will be applied in order to increase the chance of achieving selected objectives.

Certain major policies and strategies may be essentially the same. A policy of developing only through retailers may be an essential element of a company's strategy for new product development or marketing. One company may have a policy of growth through the acquisition of other companies, while another may have a policy of growing only by expanding present markets and products. While these are policies, they are also essential elements of major strategies. Perhaps one way to draw a meaningful distinction is to say that policies will guide a manager's thinking in decision - making if a decision is to be made while a strategy implies the commitment of resources in a give direction.

Answer 3 (b):
Evaluation of strategy of an enterprise is as important as strategy formulation because it provides an insight into the efficacy and effectiveness of the overall plan as well as sub-plans in attaining the desired results. It also enables the management to judge the suitability of the on-going strategy in changing socio-economic, political and technological developments and corporate

conditions and points out to the need for modification in strategy in order to seize emerging opportunities and minimise new threats.
On the basis of periodic strategy evaluation, the central management can determine precisely whether programmes are being carried out in such a way that corporate objectives will be attained satisfactorily.
Strategy evaluation also influences the behaviour of events and ensures that they conform to plans. It serves the 'steering function' - to steer the organisation and the various sub-systems within it on the right track and to negotiate their way through a turbulent environment. It aims at promoting integration between short-range and long-range plans and between the enterprise and the environment.
Strategy evaluation serves as a valuable instrument for the purpose of achieving stability and continuity on the one hand and adaptation and adjustment on the other. Organisational stability is sought through appraisal of operational policies and procedures. This ensures the steady state of the organisation to establish itself, to derive and consolidate the gains from resources already committed, to preserve the system's vitality and viability. Periodic appraisal of strategy provides an opportunity to the management to make requisite adjustments in objectives, strategies and policies in tune with the dynamics of the external environment.
Finally, strategy evaluation can help the management in making effective use of scarce and valuable resources of the enterprise. It strives for minimising the variability in the deployment of resources so that the intended goals are achieved with the least cost and few untoward consequences.

Answer 3 (c):
Task of strategy evaluation suffers from the problems arising out of misinterpretation of environmental forces and corporate resources. The evaluator may not always be correct when he questions the validity of the on-going strategy. This is because of the fact that determination of opportunities and threats is often of a function the perception and the attitude of the person making such exercise as it is of the factor itself. For instance, a dynamic and enterprising planner may perceive abundant opportunities emerging due to economic and technological developments and formulate expansion strategy. This approach may not be appreciated by an evaluator with a conservative attitude and closed cognitive style that holds the view that the enterprise should continue to maintain its present product-market posture owing to disquieting political developments.
Inaccurate assessment of financial, marketing, managerial and other resources of the enterprise and existence of synergistic benefits poses another obstacle to the appraisal of strategy. Thus, for instance, a corporate planner chooses a diversification strategy because in his view the firm has adequate financial and managerial resources to support this plan. But the evaluator questions the utility of such a strategy because he doubts the skill and competence of the senior executives of the firm.
Another obstacle that is inherent in strategy appraisal is identification, evaluation and choice of strategic alternatives. In the real world, it has been noted that some organisations without making independent appraisal of opportunities choose a course of action because others in the same line of business have done so. This type of approach renders the product-market strategy weak.
Another source of difficulty involved in appraisal of strategy is misinterpretation of current results. Generally, the central chief executive, without digger deep into the problem, regards the current strategy as unsound if the performance has not been satisfactory and directs the corporate planner to re-examine it. In the same vein, he labels the strategy as sound because of the excellent operating results. But such type of hurried judgment may, at times, be erroneous. Poor results may have been due to improper execution of strategy or outstanding profits were due to certain other factors such as war and product rationing. The management swayed by

good results may not take serious note of implications of impending environmental changes and accordingly remain indifferent to any modification in the current plan for the future.

4. (a) What do you understand by "Corporate Restructuring"? What are the different Corporate Level Restructuring Strategies? [5]

(b) "Differentiation Strategy is not without pitfalls". — Identify the common pitfalls. [5]

Answer 4 (a):

Corporate restructuring refers to the process by means of which a firm makes an assessment and evaluation of itself at a point of time and refocuses itself to specific tasks of performance for improvements. It looks upon every activity as a green field project and question the firm's basic premise in order to engineer radical change rather than aim for just incremental gains. The concept is sometimes referred to as business process re-engineering as it involves consideration of at least: business portfolio revaluation; financial engineering; and organisational redesign.

Corporate level restructuring strategies can be thought of from two aspects: hardware and software.

Hardware restructuring involves redefining and/or modifying the structure of the organisation so as to make it more efficient in decision-making, responsiveness and intra-organisational communication etc. Some suggested strategies are:

- Identification of core competency and portfolio pruning
- Flattening of organisational layer
- Downsising
- Creation of self directed teams
- Benchmarking.

Software restructuring involves cultural and process changes required to create collaborative environment for a firm's growth. Suggested steps are:

- Business strategy communication
- Co-ordination
- Trust
- Stretch
- Empowering people
- Industry foresight
- Training.

Answer 4 (b):

The essence of diversification is to be unique with features that are of value to the customers. It is concerned with a company's positioning within a market or a segment in relation to the various product characteristics that influence customer choice. However, the common pitfalls are:-

- Over differentiating, so that price is too high relative to competitors, or product quality or service levels exceed buyer's need.
- Attempting to charge too high a premium price.
- Ignoring the need to signal value and depending only on intrinsic product attributes to achieve differentiation.
- Not understanding or identifying what buyers consider as value.
- Trying to differentiate on the basis of something that does not lower a buyer's cost, as perceived by a buyer.

5. (a) Discuss how a firm can create and sustain 'Competitive Advantage'. [6]

(b) Successful pursuit of competitive advantage requires an understanding of the 'industrial value chain'. — Discuss. [4]

Answer 5(a):

Competitive advantage is creating better value for the customers of an organisation for the same or lower cost than that of its competitors or creating equivalent Value for it customers for the lower cost than that of its competitors. The difference between what a customer receives (customer's realisation) and what the customer gives up (customer's sacrifice) is the customer's value what a customer receives is called 'total product'. The total product is the complete range of tangible and intangible benefits that a customer receives from a purchased product.

According to Porter, there are two generic strategies capable of producing a sustainable competitive advantage, viz., (i) a low-cost strategy (cost leadership), and (ii) a differentiation strategy.

A low-cost strategy aims at providing the same or better value to the customers of an organisation at a low cost than its competitors. If one defines customer value as the difference between realisation and sacrifice, a low-cost-strategy tries to increase customers' value by minimising the sacrifice of the customers. On the other hand, a differentiation strategy strives to increase the customers' value by increasing what the customers receive. Providing something to the customers that is not provided by the competitors creates competitive advantage. The product characteristic(s) must be such that it/they set the product different from that of the organisation's competitors. To be of value, the customers should appreciate that same variation has been made in the product/service. Furthermore, the value added to the customers by differentiation must exceed the organisation's costs of providing the difference (variation). If the customers appreciate the variation made and if the value added to the customers exceed the cost of providing the difference, then a competitive advantage has been accomplished.

Answer 5(b):

Industrial value chain is the linked set of value-creating activities right from the basic raw materials to the disposal of the finished product/service by the end-use customers. That apart, in order to create and sustain a competitive advantage, an organisation must understand the entire value chain and not just the portion in which it operates. Breaking down the value chain into its strategically relevant activities is basic to successful implementation of cost leadership and differentiation strategies. A value chain framework is a must for understanding an organisation's strategically-important activities. Basic to a value-chain framework is the recognition that there exists complex linkages and interrelationship among activities both internal and external to the organisation. Internal linkages are, relationships among the activities that are performed within an organisation's portion (sphere of activities) of the value chain. On the other hand, external linkages describe the relationships among the organisation's value chain activities that are performed with respect to its suppliers and customers.

To gainfully exploit an organisation's internal and external linkages, one must identify the organisation's activities and select those that can be used to create and sustain a competitive advantage. This process of selection requires knowledge of the cost and value of each activity.

Section B

Question No. 6 is compulsory. Answer any two questions from the rest.

6. Five lathes are to be allotted to five operators. The weekly output figures are given below:

Operator	Weekly output in lathes				
	L1	L2	L3	L4	L5
P	20	22	27	32	36
Q	19	23	29	34	40
R	23	28	35	39	34
S	21	24	31	37	42
T	24	28	31	36	41

Profit per piece is ₹ 25. Find the maximum profit per week. [10]

Answer:

The objective is Maximisation of Profit. Hence it is converted into Opportunity Loss Matrix by subtracting each element from 42, the highest element in the matrix, the data, however, is balanced.

I. Given Production Matrix

20	22	27	32	36
19	23	29	34	40
23	28	35	39	34
21	24	31	37	42
24	28	31	36	41

II. Opportunity Loss Matrix

22	20	15	10	6
23	19	13	8	2
19	14	7	3	8
21	18	11	5	0
18	14	11	6	1

III. Row Operations

16	14	9	4	0
21	17	11	6	0
16	11	4	0	5
21	18	11	5	0
17	13	10	5	0

IV. Column Operations and Drawing Lines.

~~0~~	~~3~~	~~5~~	~~4~~	~~0~~
5	6	7	6	0
~~0~~	~~0~~	~~0~~	~~0~~	~~5~~
5	7	7	5	0
1	2	6	5	0

V. Since number of lines not equal to order of Matrix, Latest Open Element is 1. Revising the Matrix and drawing lines, we have

~~0~~	~~3~~	~~5~~	~~4~~	~~1~~
4	5	6	5	0
~~0~~	~~0~~	~~0~~	~~0~~	~~6~~
4	6	6	4	0
~~1~~	~~1~~	~~5~~	~~4~~	~~0~~

Now, Lines = 4, Order of Matrix = 5. LOE = 4

VI. Revising the matrix with LOE = 4 and drawing lines, we have

0	3	5	4	5
0	1	2	1	0
0	0	0	0	10
0	2	2	0	0
0	1	5	4	4

Now, Lines = 4, Order of Matrix = 5. LOE = 1

VII. Revising the matrix with LOE = 1 and drawing lines, we have

0	2	4	3	5
0	0	1	0	0
1	0	0	0	11
1	2	2	0	1
0	0	4	3	1

Now, Lines = 5, Order of Matrix = 5.

VIII. Operator Lathe Production

[0]	2	4	3	5
0	0	1	0	[0]
1	0	[0]	0	11
1	2	2	[0]	1
0	[0]	4	3	1

In this matrix, Lines = 5 = Order of Matrix.

IX. Answer

Operator	P	Q	R	S	T	Total Production
Lathe	L1	L5	L3	L4	L2	
Production	20	40	35	37	28	160 Units

Maximum Profit = 160 units x ₹ 25 per unit = ₹ 4000.

Note:

- When all elements of the matrix are to be uniformly multiplied or divided, e.g. profit per unit, this calculation can also be done at the stage of the final answer.
- Additional Procedures / Revised matrix is determined till Number of Lines = Order of the matrix.

7. (a) Vijay is the Manager of the athletic shoe division of Action Shoes. Action Shoes is a company that has just purchased Relaxo, a leading shoe company. Relaxo has long term production contracts with suppliers in two states, Uttar Pradesh and Bihar. Vijay receives a request from Anil, president of Action Shoes. Vijay and his controller, Mohan are to make a presentation to next Board of Directors meeting on the cost competitiveness of the Relaxo. This report should include budgeted and actual procurement costs for 2011 at its Uttar Pradesh and Bihar supply sources.

Mohan decide to visit the two supply operations. The budgeted average procurement cost for 2011 was ₹ 120 per pair of shoes. This cost includes payment to the shoe manufacturer and all other payments to conduct business in each state. Mohan reports the following to Vijay:

- **Uttar Pradesh. Total 2011 procurement costs for 2,50,000 pairs of shoes were ₹ 3,32,50,000. Payment to the shoe manufacturer was ₹ 2,65,00,000. Very few receipts existed for the remaining ₹ 67,50,000. Kickback payments are viewed as common in Uttar Pradesh.**

- **Bihar. Total 2011 procurement costs for 9,00,000 pairs of shoes were ₹ 10,48,50,000. Payment to the shoe manufacturer were ₹ 8,64,00,000. Receipts existed for ₹ 70,50,000 of the other costs, but Mohan said he is skeptical of their validity. Kickback payments are a "Way of Business" in Bihar.**

At both Uttar Pradesh and Bihar plants, Mohan was disturbed by the employment of young children (Many of them younger than 15 years). He was told that all major shoe-producing companies had similar low-cost employment practices in both states.

Vijay is uncomfortable about the upcoming presentation to the board. He was a leading advocate of the acquisition. A recent business magazine reported that Relaxo acquisition would make Action Shoes the global low-cost producer in its market lines. The stock price of Action Shoes jumped 21% the day Relaxo acquisition was announced. Mohan likewise is widely identified as a proponent of the acquisition. He is seen as a "rising star" due for a promotion to a division manager in the near future.

Required:

(i) What summary procurement cost variances could be reported to the Board of Directors of Action Shoes?

(ii) What ethical issues do (a) Vijay and (b) Mohan faces when preparing and making a report to the Board of Directors?

(iii) How should Mohan address the issues you identify in requirement (ii)? [4+4+4=12]

Answer 7(a):

(i) Purchase price variances can be computed for each State.

Purchase Price Variance= [Actual Price of input- Budgeted Price of input] x Actual quantity of input

Uttar Pradesh= (₹ 133[a] - ₹ 120) x 2,50,000= ₹ 32,50,000 U

[a]₹ 3,32,50,000 ÷ 250,000= ₹ 133

On a per-unit basis, there is a ₹ 106 payment to the shoe manufacturer and a ₹ 27 payment for "other costs".

Bihar = (₹ 116.5[a] - ₹120) x 9,00,000= ₹ 31,50,000F

[a]₹ 10,48,50,000 ÷ 9,00,000= ₹ 116.50

On a per-unit basis, there is a ₹ 96 payment to the shoe manufacturer and a ₹ 20.5 payment for "other costs".

(ii) Vijay and Mohan face many ethical issues:

(a) Reliability of cost information to be presented to the Board of Directors. There are minimal or questionable receipts for ₹67,50,000 in Uttar Pradesh and ₹1,84,50,000 in Bihar.

(b) Potential existence of kickback payments in both Uttar Pradesh and Bihar.

(c) Employment of young children (Many of them under 15 years.)

Should Vijay and Mohan be forthright and present all their concerns on (a), (b), and (c)?

Both Vijay and Mohan Faces the dilemma that any discussion of (a), (b), or (c) will raise questions about their own behavior at the time the acquisitions were made. Board members may ask "when did they first know about (a), (b), and (c)?" and "Why did they not undertake examination of these issues at the time they supported the acquisitions?"

(iii) Mohan has very high standards of ethical conduct to meet. He should not make presentation to the Board based on information he has strong doubts about. If he decide to make the presentation, all his concerns and caveats should be presented. He should require detailed documentation for all payments. No future payment should be made without adequate documentation. Investigation of kickback allegation should be made, however

difficult that may be. Mohan should be able to make a good-faith effort to ensure kickback payments are not an ongoing practice in Uttar Pradesh or Bihar.

(b) A manufacturing concern has a multi-purpose plant capable of operating at full capacity at 5,000 machine hours per month. It may produces three products inter-changeably, for which the output and cost details are as follows-

Product	Output per machine hour	Material Costs
A	500 units	₹ 42.50 per 1,000 units
B	250 units	₹ 17.50 per 1,000 units
C	1,000 units	₹ 30.00 per 1,000 units

Labour Cost is ₹ 15 per machine hour while Variable Overheads will be ₹ 5 per machine hour.
The Fixed Costs of this department is ₹ 1,00,000 per monthly production period
The Company estimates from past experience that the full capacity can be used at all times if machine time can be freely moved from one product to another as dictated by demand and is anxious to establish suitable product selling prices (per 1,000 units). The three price fixing methods under consideration are:

- **To fix prices at product cost plus 20%**
- **To fix prices so as to give a contribution of ₹ 35 per machine hour**
- **To fix prices arbitrarily (per 1,000 units) as Product A- ₹150, Product B- ₹ 230 and Product C- ₹ 90.**

Prepare a comparative statement of prices that would be charged under the three methods. Suggest which method should be adopted. [6+2]

Answer 7(b):

Statement of Selling Prices under alternative strategies (per 1,000 units)

Particulars	Product A	Product B	Product C
a. Material Cost	42.50	17.50	30.00
b. Labour Cost for 2,4 and 1 hour at ₹ 15 per hour	30.00	60.00	15.00
c. Variable OH for 2,4 and 1 hour at ₹ 5 per hour	10.00	20.00	5.00
d. Total Variable Cost = a + b + c	82.50	97.50	50.00
e. Fixed OH at (₹ 1,00,000 /5,000)= ₹ 20 per hour	40.00	80.00	20.00
f. Total Cost = d + e	122.50	177.50	70.00
g. Profit margin at 20% of total cost	24.50	35.50	14.00
h. Selling price based on Cost Plus basis= f + g	147.00	213.00	84.00
i. Contribution for 2, 4 and 1 hour at ₹ 35 per hour	70.00	140.00	35.00
j. Selling Price to guarantee Contribution = d + i	152.50	237.50	85.00
k. Selling Price fixed arbitrarily (given)	150.00	230.00	90.00
l. Best Selling Price (highest of h, j and k)	152.50	237.50	90.00
m. Best method of fixing the price (individually)	Guaranteed Contribution	Guaranteed Contribution	Arbitrary Method

Decision: On an overall basis, the method which guarantees contribution of ₹ 35 per machine hour may be considered as ideal as it will ensure a profit of (₹ 35 × 5,000 hours) less Fixed Cost ₹ 1,00,000= ₹ 75,000 per month. This profit will be earned irrespective of the product mix decision.

8. (a) What are the pre-requisites for successful Benchmarking? [4]

Answer 8(a):

The pre-requisites for successful Benchmarking are:

(i) Commitment: Senior Managers should support benchmarking fully and must be committed to continuous improvements.

(ii) Clarity of objectives: The objectives should be clearly defined at the preliminary stage. Benchmarking teams have a clear picture of their Firm's performance before approaching others for comparisons.

(iii) Appropriate Scope: The scope of the work should be appropriate in the light of the objectives, resources, time available and the experience level of those involved.

(iv) Resources: Sufficient resources must be available to complete projects within the required time scale.

(v) Skills: Benchmarking teams should have appropriate skills and competencies.

(vi) Communication: Stakeholders, and also staff and their representatives, are to be kept informed of the reasons for benchmarking.

(b) ABC Ltd. is a small Company manufacturing a lathe attachment for the Turett Lathe market. The data for manufactures attachment are as follows -

(For each Batch of 10 Turett Lathes)

Component	A	B	C	D	E	Total
Machine Hours	10	14	12			36
Labour Hours				2	1	3
	₹	₹	₹	₹	₹	₹
Variable Cost	32	54	58	12	4	160
Fixed Cost (apportioned)	48	102	116	24	26	316
Total Component Costs	80	156	174	36	30	476

Assembly costs (all variables) ₹40 per 10. Selling Price ₹600 per 10.

General-purpose machinery is used to make components A, B, C and is already working to the maximum capability of 4,752 hours and there is no possibility of increasing the machine capacity in the next period. There is labour available for making components D and E and for assembling the product.

The Marketing Department advises that there will be 50% increase in demand in the next period so the Company has decided to buy one of the machine-made components from an outside supplier in order to release production capacity and thus help to satisfy demand.

A quotation has been received from XYZ Ltd for the components, but because this Company has not made the components before, it has not been able to give single figure prices, its quotation is as follows –

Component	Pessimistic		Most Likely		Optimistic	
	Price	Probability	Price	Probability	Price	Probability
A	96	0.25	85	0.5	54	0.25
B	176	0.25	158	0.5	148	0.25
C	149	0.25	127	0.5	97	0.25

It has been agreed between the two companies that audited figures would be used to determine which one of the three prices would be charged for whatever component is brought out.

Required:

(i) Show in percentage form - the maximum increased production availability from the three alternatives, i.e. buying A or B or C.
(ii) Analyse the financial implications of the purchase and assuming a risk neutral attitude, recommend which component to buy out, noting that the production availability will be limited to a 50% increase.
(iii) Prepare a profit statement for the period assuming that the component chosen in (ii) is bought out and that the extra production is made and sold. [4+5+4=13]

Answer 8 (b):

(i) Identification of Key Factor – General Purpose Machinery

(a) Machine Capacity			4,752 hours
(b) Machine hours per batch of 10 Turret lathes:	A	10 hours	
	B	14 hours	
	C	12 hours	36 hours
(c) Hence, Present output (a ÷ b)			132 batches
(d) Add: 50% increase in demand			66 batches
(e) Projected output			198 batches
(f) Present and Projected Fixed costs ₹316 x 132 batches			₹41,712

(ii) Expected Price

Probability	Price	A	Price	B	Price	C
Pessimistic - 0.25	96	24.00	176.00	44	149	37.25
Most Likely - 0.50	85	42.50	158.00	79	127	63.50
Optimistic - 0.25	54	13.50	148.00	37	97	24.25
Expected Price		**80.00**		**160.00**		**125.00**

(i) Computation of Present Contribution

Particulars	₹	₹
Selling Price		600
Less: Variable Production Costs	160	
Variable Assembly Costs	40	200
Contribution		400
Present Total Contribution (132 Batches)	(132 x 400)	52,800

(ii) Increased Production Availability

Option	Machine Hours Reqd.	No. of batches possible	Increase
Buy A, Make B & C	14+ 12 = 26 hours	4,752 ÷ 26= 182.80 batches	182.80-132 = 50.8 batches (38.5%)
Buy B, Make A & C	10 + 12 = 22 hours	4,752 ÷ 22 = 216 batches	216-132 = 84 batches (63.6%)
Buy C, Make A & B	10+ 14 = 24 hours	4,752 ÷ 24 = 198 batches	198-132 = 66 batches (50%)

Effect of Purchasing Components from outside

Component purchased outside	A	B	C

(a) Variable Cost of Make	₹ 32	₹ 54	₹ 58
(b) Expected Purchase Price (WN 2)	₹ 80	₹160	₹125
(c) Additional Cost if bought out (b - a)	₹ 48	₹106	₹ 67
(d) Present Contribution per batch (WN 3)	₹400	₹400	₹400
(e) No. of batches (restricted to max 50% increase)	182.80	198	198
(f) (f) Revised Contribution (d - c) x (e)	₹64,346	₹58,212	₹65,934

Decision: It is advisable to purchase C outside since this result in the greatest revised contribution.

(iii) Revised Profit Statement (based on decision in WN 5 above) (for 198 batches)

Particulars			**Per Batch**	**Total**
Selling Price			600	1,18,800
Less: Variable Production Costs	A	Made 32		
	B	Made 54		
	C	Bought 125		
	D	Made 12		
	E	Made 4	227	44,946
Variable Assembly Costs			40	7,920
Contribution			333	65,934
Less: Fixed costs				41,712
Profit				**24,222**

(c) Explain how the PRAISE process can be smoothly implemented. [3]

Answer 8 (c):

A three-point plan for implementation of the process is:-

(i) Small to Big Issue: Big improvement opportunities are generally complex and require extensive inter-departmental co-operation. The choice of a relatively small problem in the first instance provides greater chance of success. Therefore, the TQM team has to proceed from small to big issues gradually.

(ii) Solvable problem: The problem selected should not be trivial, but it should be one with a potential impact and a clear improvement opportunity. Measurable progress towards implementation should be accomplished within a reasonable time in order to maintain the motivation of participants and advertise the success of the improvement itself.

(iii) Recognition of participations: The successful projects and team members should receive appropriate recognition. Prominent individuals should be rewarded for their efforts through monetary/ non-monetary prizes as a measure of personal recognition and as encouragement to others.

9. (a) The following were the expenses incurred by a company in operating two lorries (for the conveyance of Raw Material)and a bus (for the conveyance of staff)during a selected months.

(₹)

Particulars	**Monthly Cost**		
	Lorry A	**Lorry B**	**Bus**
Driver's salaries	**110**	**115**	**120**
Cleaner's wages	**120**	**120**	**60**
Petrol	**170**	**240**	**110**
Oil	**18**	**25**	**20**

Repairs	**150**	**150**	**100**
Depreciation	**330**	**220**	**350**
Supervision	**70**	**70**	**70**
Garage overhead	**130**	**110**	**75**
Road and other tax	**35**	**40**	**20**
Other overhead expenses	**45**	**45**	**30**

The above vehicles carried the following Raw Materials and Passengers during the Month:

Lorry A	**100 tonnes of raw material**
Lorry B	**120 tonnes of raw material**
Bus	**25 Passengers daily for 25 days.**

At the same time their respective mileage during the same period were:

Lorry A	**3,000**
Lorry B	**4,500**
Bus	**2,000**

From the above statistics prepare an operating cost sheet in summary for the three vehicles. Also calculate the cost per tonne or passenger miles. [8+2]

Answer 9 (a):
Working Notes
Calculation of tonne miles per month of 25 days

Particulars	Lorry A	Lorry B
Tones carried per day	100 tonnes / 25 days = 4 tonnes	120 tonnes /25 days = 4.8 tonnes
Miles per day	3,000 miles / 25 days = 120	4,500 miles / 25 days = 180
Total tonne-miles per month	4x120x25 = 12,000 tonnes miles	4.8x180x25 = 21,600 tonnes miles

Calculation of Bus passenger miles
Passengers carried per day = 25
Miles covered in a day = 2,000 miles/25 = 80 miles
Bus passenger miles p.m. = 25 x 80 x 25 = 50,000 passenger miles

Operating Cost Statement for the month

(₹)

Particulars		Lorry A	Lorry B	Bus C
Fixed expenses				
Depreciation		330	220	350
Supervision		70	70	70
Road and other Taxes		35	40	20
Other overhead expenses		45	45	30
Total	(a)	480	375	470
Maintenance expenses				
Repairs		150	150	100
Garage overhead		130	110	75
Total	(b)	280	260	175
Running expenses				
Driver's Salary		110	115	120
Cleaner's Salary		120	120	60
Petrol		170	240	110
Oil		18	25	20
Total	(c)	418	500	310

Total Operating Cost (a) + (b) + (c)	1,178	1,135	955
Total tonne or passenger miles	12,000	21,600	50,000
Cost per tonne or passenger-mile (₹)	0.098	0.053	0.019

(b) AML Ltd. is engaged in production of three types of ice-cream products: Coco, Strawberry and Vanilla. The Company presently sells 50,000 units of Coco at ₹25 per unit, Strawberry 20,000 units at ₹ 20 per unit and Vanilla 60,000 units at ₹ 15 per unit. The demand is sensitive to selling price, and it has been observed that every reduction of ₹ 1 per unit in selling price increases the demand for each product by 10% to the previous level. The Company has the production capacity of 60,500 units of Coco, 24,200 units of Strawberry and 72,600 units of Vanilla. The Company marks up 25% on cost of the product.

The Company management decides to apply ABC Analysis. For this purpose, it identifies four activities and the rate as follows:

Activity	Cost Rate
Ordering	**₹800 per purchase order**
Delivery	**₹700 per Delivery**
Shelf Stocking	**₹199 per Hour**
Customer Support and Assistance	**₹1.10 p.u.sold**

The other relevant information for the product are as follows:

Particulars	Coco	Strawberry	Vanilla
Direct material p.u. (₹)	**8**	**6**	**5**
Direct Labour p.u.(₹)	**5**	**4**	**3**
No. of purchase orders	**35**	**30**	**15**
No. of deliveries	**112**	**66**	**48**
Shelf Stocking Hours	**130**	**150**	**160**

Under the traditional costing system, store support costs are charged at 30% of prime cost. In ABC these costs are coming under Customer Support and Assistance.

Required:

(i) Calculate Target Cost for each product after a reduction of selling price required to achieve the sales equal to the production capacity.

(ii) Calculate the total cost and unit cost of each product at the maximum level using Traditional Costing.

(iii) Calculate the total cost and unit cost of each product at the maximum level using Activity Based Costing.

(iv) Compare the cost of each product calculated in (i) and (ii) with (iii) and comment on it.

[2+2+3+3=10]

Answer 9 (b):

(i) Computation of New selling price to achieve 100% production capacity

Coco		Strawberry		Vanilla	
Price (₹)	**Quantity (units)**	**Price (₹)**	**Quantity (units)**	**Price (₹)**	**Quantity (units**
25	50,000	20	20,000	15	60,000
25-1=24	50,000+10%=55,000	20-1=19	20,000+10%=22,000	15-1=14	60,000+10%=66,000
24-1=23	55,000+10%=60,500	19-1=18	22,000+10%=24,200	14-1=13	66,000+10%=72,600

Computation of Target Cost to achieve 100% capacity

Particulars	Coco	Strawberry	Vanilla
(a) Total production capacity	60,500 units	24,200 units	72,600 units
(b) Proposed selling price as per WN1 above	₹23.00	₹18.00	₹13.00
(c) Profit margin at 25% on cost (1/4th on cost=1/5th on sales)	₹4.60	₹3.60	₹2.60
(d) Target Cost p.u.	₹18.40	₹14.40	₹10.40

(ii) Computation of cost under Traditional Costing

Particulars	Coco	Strawberry	Vanilla
(a) Direct Material p.u	₹8.00	₹6.00	₹5.00
(b) Direct labour p.u	₹5.00	₹4.00	₹3.00
(c) Prime Cost (a+b)	₹13.00	₹10.00	₹8.00
(d) Store support 30% of prime cost (c)	₹3.90	₹3.00	₹2.40
(e) Total Cost p.u	₹16.90	₹13.00	₹10.40
(f) 100% level output quantity	60,500 units	24,200 units	72,600 units
(g) Target costs (e × f)	₹10,22,450	₹3,14,600	₹7,55,040
(h) Target cost p.u as per WN2	₹18.40	₹14.40	₹10.40
(i) Comments (e) vs (h)	₹1.50 cost further saved when compared to target cost	₹1.40 further cost saved when compared to target cost	Target cost just achieved

(iii) Computation of Total Cost & Unit Cost using ABC

Particulars		Coco (₹)		Strawberry		Vanilla
	p.u	Total	p.u	Total	p.u	Total
Output quantity		60,500 units		24,200 units		72,600 units
Direct material	8.00	4,84,000	6.00	1,45,200	5.00	3,63,000
Direct labour	5.00	3,02,500	4.00	96,800	3.00	2,17,800
Cost of purchase order	0.46	(800x35)28,000	0.99	(800x30)24,000	0.17	(800x15) 12,000
Cost of delivery	1.30	(700x112)78,400	1.91	(700x66)46,200	0.46	(700x48) 33,600
Shelf stocking	0.43	(199x130)25,870	1.23	(199x150)29,850	0.44	(199x160)31,840
Customer support & Assistance	1.10	66,550	1.10	26,620	1.10	79,860
(a) ABC Cost p.u	16.29	9,85,320	15.23	3,68,670	10.17	7,38,100
(b) Target Cost p.u	18.40		14.40		10.40	
(c) Comments (a vs b)	₹2.10 cost further saved when compared to Target Cost		0.83 further cost reduction required.		0.23 cost further saved when compared to target cost.	