INDEX

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1: ASSIGNMENT

(1) In an assignment problem to assign jobs to men to minimize the time taken, suppose that one man does not know how to do a particular job, how will you eliminate this allocation from the solution?

- In an assignment problem, if one task cannot be assigned to one person, introduce a prohibitively large cost for that allocation, say M, where M has a high value.

  Then while doing the row minimum and column minimum operations, automatically this allocation will get eliminated.

2: TRANSPORTATION

(1) How do you know whether an alternative solution exists for a transportation problem?

- The Δ_{ij} matrix = $\Delta_{ij} = C_{ij} - (u_i + v_j)$

where c_i is the cost matrix and $(u_i + v_j)$ is the cell evaluation matrix for allocated cell.

The Δ_{ij} matrix has one or more 'zero' elements, indicating that, if that cell is brought into the solution, the optional cost will not change though the allocation changes.

Thus, a 'zero' element in the Δ_{ij} matrix reveals the possibility of an alternative solution.

(2) What do you mean by Degeneracy in a transportation problem? How can this be solved?

- In a transportation problem, if the no of occupied cells is less than $m+n-1$, such a solution, in a transportation problem, is called as degeneracy. Degeneracy can occur twin-ways:

(i) The initial basic solution can turn out to be a degenerate solution

or

(ii) An improved solution can turn out to be a degenerate solution

This can be solved by introducing an infinitesimally small allocation ϵ (epsilon) to the least cost empty cell so that the total number of allocated cells is equal to $m+n-1$ independent cells.

(3) Will the initial solution for a minimization problem obtained by Vogel's Approximation Method and Least Cost Method be the same? Why?

- The initial solution need not be the same under both the methods.

Vogel's Approximation Method uses the difference between the minimum and the next minimum costs for each row and column.
This is the penalty or opportunity cost of not utilising the next best alternative. The highest penalty is given the 1st preference. This need not be the lowest cost.

For example if a row has minimum cost as 3, and the next minimum as 2, then the penalty is 1; whereas if another row has minimum 4 and the next minimum 6, penalty is 2, and this row is given preference.

But Least Cost gives preference to the lowest cost cell, irrespective of the next cost.

Vogel's Approximation Method will result in a more optimal solution than Least Cost Method.

They will be the same only when the maximum penalty and the minimum cost coincide.

3: SIMULATION

(1) Explain the steps in Simulation Process

1. Define the problem or system you intend to simulate.
2. Formulate the model you intend to use.
3. Test the model; compare its behaviour with the behaviour of the actual problem environment
4. Identify and collect the data needed to test the model
5. Run the simulation.
6. Analyze the results of the simulation and, if desired, change the solution you are evaluating.
7. Rerun the simulation to test the new solution.
8. Validate the simulation, that is, increase the chances that any inferences you draw about the real situation from running the simulation will be valid.

(2) Explain the steps in Monte Carlo Simulation.

1. Select the measure of effectiveness of the problem.
2. Identify the variables which influence the measure of effectiveness significantly.
3. Determine the proper cumulative probability distribution of each variable selected under step 2.
   Plot these, with the probability on the vertical axis and the values of variable on horizontal axis.
4. Get a set of random numbers.
5. Consider each random number as a decimal value of the cumulative probability distribution. With the decimal, enter the cumulative distribution plot from the vertical axis. Project this point horizontally, until it intersects cumulative probability distribution curve. Then project the point of intersection down into the vertical axis.

6. Record the value generated in step 5 into the formula derived from the chosen measure of effectiveness. Solve and record the value. This value is the measure of effectiveness for that simulated value.
7. Repeat step 5 and step 6 until sample is large enough for the satisfaction of the decision maker.

(3) What are the major reasons for using Simulation?

1. It is not possible to develop a mathematical model and solutions with out some basic assumptions.
2. It may be too costly to actually observe a system.
3. Sufficient time may not be available to allow the system to operate for a very long time.
4. Actual Operation and observation of a real system may be too disruptive.

(4) What are the advantages of Simulation?

1. Simulation Technique allow experimentation with a model of the system rather than the actual operating system. Sometimes experimenting with the actual system could prove to be too costly and in many cases, too disruptive.
2. The non-technical manager can comprehend simulation more easily than a complex mathematical model. Simulation does not require simplifications and assumptions to the extent required in analytical solutions. A simulation model is easier to explain to the management personnel.
3. Sometimes there is not sufficient time to allow the actual system to operate extensively.
4. Simulation allows a user to analyze these large complex problems for which analytical results are not available.

4°. LEARNING CURVE

(1) Discuss the application of learning curve.

- Learning curve helps to analyze cost-volume profit relationships during familarisation phase of product or process to arrive at cost estimates.
- It helps in budgeting and profit planning.
- It helps in pricing and consequent decision-making
  E.g - acceptance of an order, negotiations in establishing contract prices etc, with the advantage of the knowledge of decreasing unit cost.
- It helps in setting standards in the learning phase.

(2) What are the distinctive features of learning curve theory in a manufacturing environment?
Explain the learning curve Ratio.

- As the production quantity of a given item is doubled, the cost of the item decreases at a fixed rate. This phenomenon is the basic premise on which the theory of learning curve has been formulated.

It occurs due to the following distinctive features of manufacturing environment:

(i) Better tooling methods are developed and used.
(ii) More productive equipments are designed and used to make the product.
(iii) Design bugs are detected and corrected.
(iv) Engineering changes decrease over time.
(v) Earlier testing problems are overcome.
(vi) Rejection and reworks tend to decrinish over time.

In the initial stage of a new product or new process, the learning effect pattern is so regular that the rate of decline established at the outset can be used to predict labour cost well in advance. The effect of experience on cost is summarized in the learning curve ratio / Improvement Ratio.

$$\text{Learning Curve Ratio} = \frac{\text{Average labour cost of first } 2N \text{ units}}{\text{Average labour cost of first } N \text{ units}}$$

(3) The following information is provided by a firm. The factory manager wants to use appropriate average learning rate on activities, so that he may forecast costs and prices for certain level of activities:

(i) A set of very experienced people feed data into the computer for processing inventory records in the factory. The manager wishes to apply 80% Learning Rate on data entry and calculation of inventory.

(ii) A new type of machinery is to be installed in the factory. This is patented process and the output may take a year for full fledged production. The factory manager wants to use a learning rate on the workers at the new machine.

(iii) An operation uses Contract Labour. The contractor shifts people among various jobs once in 2 days. The labour force performs one task in 3 days. The manager wants to apply an average learning rate for these workers.

You are required to advise the manager with reasons on the applicability of learning curve theory on the above situations.

- The learning curve does not apply to very experienced people for the same job, since time taken can never tend to become zero or reduce very considerably after a certain range of output. This is the limitation of learning curve.

(i) Data Entry is a manual job, so learning rate theory may be applied.
Calculation of inventory is a computerized job. Learning Rate applies only to manual labour

(ii) Learning Rate should not be applied to a new process which the firm has never tried before.

(iii) The workers are shifted even before completion of one unit of work. Hence, Learning Rate will not apply.

5: LINEAR PROGRAMMING

(1) What are the practical applications of Linear Programming?

- Linear Programming can be used to find optional solutions under constraints.

(a) In Production:
- Production Mix under capacity constraints to minimise costs/ maximise profits along with marginal costing.
- Inventory management to minimise holding cost, warehousing/ transporting from factories to warehouses, etc.

(b) Sensitivity Analysis:
- By providing a range of feasible solutions to decide on discounts on selling price, decisions to make or buy.

(c) Blending:
- optional blending of raw materials under supply constraints.

(d) Finance:
- Portfolio management, interest/ receivables management.

(e) Advertisement Mix:
- in advertising campaign - analogous to production management and production mix.

(f) Assignment of personnel to jobs and resource allocation problems.

However, the validity will depend on the manager's ability to establish a proper linear relationship among variables considered.

(2) Explain the concept of and aim of Theory of constraints. What are the key measures of theory of constraints?

- The theory of constraints focuses its attention on constraints and bottlenecks within an organisation which hinder speedy production. The main concept is to maximize the rate of manufacturing output which is the throughput of the organisation.
  This requires to examine the bottlenecks and constraints.
- A bottleneck is an activity within the organisation where the demand for that resource is more than its capacity to supply.
- A constraint is a situational factor which makes the achievement of objectives / throughput more difficult than it would otherwise b For example, constrainsts may be lack of labour (skilled), lack of customer orders or need to achieve high quality in product outpu Thus bottlenecks and constraints are closely examined to increase throughput.

- Key measures of theory of constraints are:

(i) Throughput contribution:

- It is the rate at which the system generates profit through sales. It is defined as Sales less Completely Variable cost –

(ii) Investments:

- This is the sum of material cost of direct materials, inventory WIP, finished goods inventory, R&D cost and costs of equipments and buildings.

(iii) Other Operating costs:

- This equals all operating costs (other than direct materials) incurred to earn throughput contribution. Other operating costs include salaries & wages, rent, utilities and depreciat

(3) Write short notes on characteristics of the dual problem.

(1) For any linear programming model called Primal model, there exists a companion model called dual model.

(2) The number of constraints in the primal model equals the number of variables in the dual model.

(3) The number of variables in the primal model equals the number of constraints in the dual model.

(4) If the primal model is a maximization problem then the dual model will be of the form less than or equal to "$\leq$" while the restrictions in the dual problem will be of the form greater than or equal to, "$\geq$".

(5) The solution of the primal model yields the solution of the dual model.

(6) Dual of the primal's dual problem is the primal problem itself.

(7) Feasible solutions to a primal and dual problem are both optimal if the complementary slackness conditions hold.

(8) If the primal problem has no optimal solution because of infeasibility then the dual problem will have no optimal solution because of unboundedness.

(9) If the primal has no optimal solution because of unboundedness, then the dual will have no optimal solution because of infeasibility.

6: NETWORKING

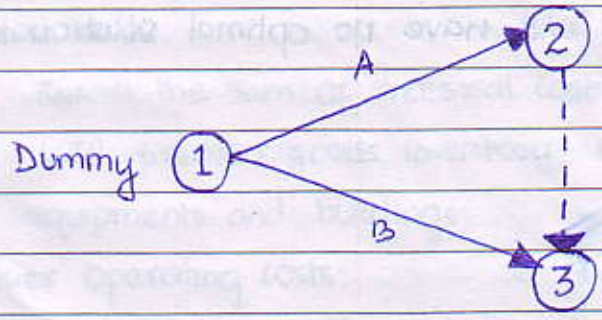
(i) Explain the following in the context of networking:

(i) Critical Path

(ii) Dummy Activity.

(i) Critical Path: Critical Path is a chain of activities that begins with the starting event and ends with the ending event of a particular project. It is the path that runs through a network with the maximum length of time or it indicates the maximum possible time required for the completion of a project. It is determined after identifying critical events. Critical Path goes through critical events.

(ii) Dummy Activities: Dummy Activity is that activity which does not consume time or resources. It is used when two or more activities have same initial and terminal events. As a result of using dummy activities, other activities can be identified by unique and events. These are usually shown by arrows with dashed liner.



(2) Explain the steps in PERT / CPM Model

List the 5 steps involved in the methodology of Critical Path analysis.

- The working methodology of PERT which includes both CPM and PERT, consists of the following five steps:

1. Analyze and break down the project in terms of specific activities and/or events.
2. Determine the interdependence and sequence of specific activities and prepare a network.
3. Assign estimates of time, cost or both to all the activities of the network.
4. Identify the longest or critical path through the network.
5. Monitor, evaluate and control the progress of the project by re-planning, re-scheduling and reassignment of resources

(3) Why is a dummy activity used in networking?

- Dummy Activity is inserted in a network to clarify an activity pattern under the following situations.

(i) To make activities with common starting and finishing events distinguishable.

(ii) To identify and maintain the proper precedence relationship between activities that are not connected by events.

(iii) To bring all "loose ends" to a single initial and single terminal event.

(4) Distinguish between PERT and CPM.

- The PERT and CPM models are similar in terms of their basic structure, rationale and mode of analysis. However, there are certain distinctions between PERT and CPM networks which are enumerated below:

(1) CPM is activity oriented i.e CPM network is built on the basis of activities.
On the other hand, PERT is event oriented.

(2) CPM is a deterministic model i.e it does not take into account the uncertainities involved in the estimation of time for execution of a job or an activity. It completely ignores the probabilistic element of the problem.
PERT, however is a probabilistic model. It uses three estimates of activity time; optimistic, pessimistic and most likely with a view to take into account time uncertainity.

(3) CPM laces dual emphasis on time and costs and evaluates the trade-off between project cost and project item.
On the other hand, PERT is primarily concerned with time. It helps manager to schedule and coordinate various activities so that the project can be completed on scheduled time.

(4) CPM is commonly used for those projects which are repetitive in nature and where one has prior experience of handling similar projects.
PERT is generally used for those projects where time required to complete various activities are not known as prior.

7. UNIFORM COSTING

(1) What are the essential requisites for the installation of Uniform costing system?

- The essential requisites for the installation of uniform costing are as under:
  - (i) The firms in the industry should be willing to share / furnish relevant data or information.
  - (ii) A spirit of cooperation and mutual trust should prevail among the participating firms.
  - (iii) Mutual exchange of ideas, methods used, special achievement made, research and know how etc should be frequent.
  - (iv) Bigger firms should take the lead towards sharing their experience and know how with the smaller firm to enable the latter to improve their performance.
  - (v) Uniformity should be established with regard to the size of units, production methods, accounting methods, procedures and principles used.

(2) What is Inter-Firm Comparison? What are the requisites of inter-firm comparison system?

- Inter Firm Comparison is a technique of evaluating the performance, efficiency, costs and profits of firms in an industry. It consists of voluntary exchange of information / data concerning costs, prices, profit, productivity and overall efficiency among firms engaged in similar type of operations for the purpose of bringing improvement in efficiency and indicating the weakness.
- Requisites:
  - (i) Centre for Inter-Comparison
  - (ii) Membership
  - (iii) Nature of information to be collected
  - (iv) Method of collection and presentation of information

8. JUST IN TIME

(1) How does the JIT approach help in improving an organisation's profitability?

- JIT approach helps in the reduction of costs/increase in prices as follows:
  - (i) Immediate detection of defective goods being manufactured so that early correction is ensured with least scrapping.
  - (ii) Eliminates/reduces WIP between machines within working cell
  - (iii) Overhead costs in the form of rentals for inventory, insurance, maintainance costs etc are reduced
  - (iv) Higher product quality ensured by the JIT approach leads to higher premium in the selling price.
  - (v) Detection of problem areas due to better production/scrap reporting / labour tracing and inventory accuracy lead to reduction in costs by improvement.

(2) Explain how the implementation of JIT approach to manufacturing can be a major source of competitive advantage.

- JIT provides competitive advantage in the following ways:
  - (i) Stock of raw materials and finished goods are eliminated, stock holding cost are avoided
  - (ii) JIT aims at elimination of non-value added activities and elimination of cost in this direction will improve competitive advantage.
  - (iii) It affords flexibility to customer requirements where the company can manufacture customized products and the competitive advantage is thereby improved.
  - (iv) It focuses the direction of performance based production of high quality product
  - (v) It minimizes waiting time and transportation costs

(3) Describe the JIT Systems

- A complete JIT system begins with production, includes deliveries to a company's production facilities, continues through the manufacturing plant and even includes the types of transactions processed by the accounting system.

(i) The company must ensure that it receives it's supplies on time, preferably directly at the production facility that needs them. The company engineers must assist suppliers at their premises and ensure defect free supplies. Thus raw material inventory is reduced if correct quantities are delivered as per production schedules.

(ii) Long set-up times are reduced into short ones by eliminating inefficiency. Thus the WIP is reduced and so is the number of products before defects are identified.

(iii) A 'Kanban' card, which authorizes production of right quantity by its feeder machine ensures 'pulling' the production process and elimination of inventory. Another method is the introduction of a working cell, which is a cluster of machines run by a single trained operator. This also identifies defects quickly and reduces maintenance costs. Both methods are used together.

(iv) Work force is trained to be empowered to halt operations understan more about the system, product flow, different machines and thus, elaborate reporting of a past variance is eliminated.

(v) Suppliers may be paid based on production units adjusted for defects.

(4) What is Backflushing in JIT? State the problems that must be addressed for the effective functioning of the system.

- Backflushing requires no data entry of any kind until a finished product is completed. At the time the total amount finished is entered into the computer system, which multiplies it by all the components listed in the bill of materials for each item produced.

- To work system properly some serious problems must corrected

(i) Production reporting: The total production figure entered into the system must be absolutely correct.

(ii) Scrap reporting: All abnormal scrap must be deligently tracked and recorded; otherwise these materials will fall outside the backflushing system and will not be charged to inventory.

(iii) Lot traing: Lot traing is impossible under backflushing system. It is required when a manufacturer needs to keep records of which production lots were used to create a product in case all the items in a lot must be recalled.

(iv) Inventory accuracy: Maintain accurate set of inventory records.

9: TQM

(1) What are the essential requirements for successful implementation of TQM?

- Commitment: Quality improvement must be every one's job. Clear commitment from the top management, steps necessary to provide an environment for changing attitudes and breaking down barries to quality improvement must be provided. Support and training for this must be extended.

- Culture: Proper training must be given to effect changes in culture and attitude.

- Continuous Improvement: Recognition of room for improvement continually as a process, and not merely a one-off programme.

- Cooperation: Must be ensured by involving employees by resorting to mutually agreeable improvement strategies and associated performance measures.

- Customer focus: Perfect service with zero defectives with satisfaction to end user whether external customer or internal customer.

- Control: Documentation, procedures and awareness of current practices ensure checking deviation from the intended course of implementation.

(2) Discuss the benefits accruing from the implementation of a TQM programme in an organization.

- (i) There will be increased awareness of quality culture in the organization
- (ii) It will lead to commitment to continuous improvement
- (iii) It will focus on customer satisfaction
- (iv) A greater emphasis on team work will be achieved.

(3) What are the critical success factors for the implementation of TQM?

- Focus on customer needs
- Everyone in the organisation should be involved
- Focus on continuous improvement
- Design quality in product and production process

(4) Explain four P's of Quality Improvement Principles.

(i) People : It will quickly become apparent that some individuals are not ideally suited to the participatory process. Lack of enthusiasm will be apparent from a generally negative approach and a tendency to have prearranged meeting which coincide with the meetings of TQM teams.

(ii) Process : The rhetoric and inflexibility of a strict Deming approach will often have a demotivating effect on group activity.

(iii) Problem : Experience suggests that the least successful groups are those approaching problems that are deemed to be too large provide meaningful solutions within a finite time period.

(iv) Preparation : A training in the workings of Deming-like process is an inadequate preparation for the efficient implementation of quality improvement process

10. THROUGHPUT ACCOUNTING

(1) Write short note on Throughput Accounting.

- Throughput Accounting (TA) is a method of performance measuremen which relates production and other costs to throughput. Throughput accounting product costs relate to usage of key resources by various products. It assumes that a manager has a given set of resources available and these have been efficiently used to process purchased materials and components to generate sales revenue. The cost of all other is deemed at least time related rather than fixed.
- Throughput is influenced by:
  - Selling Price
  - Direct purchase price.
  - Usage of direct materials.
  - Volume of throughput.
- Constraints on Throughput
  - the existence of an uncompetitive selling price.
  - the need to deliver on time to particular customers.
  - the lack of product quality and reliability.
  - the lack of reliable materials suppliers.
  - the existence of shortage of production resources.

11. SERVICE SECTOR COSTING

(1) Discuss with examples, the costing methods to assign cost to services.

(i) Job Costing Method: The cost of a particular service is obtained by assigning costs to a distinct identifiable service.
Eg: Job costing Method is used in service sectors like Accounting Firms, Advt campaign.

(ii) Process Costing Method: Cost of a service is obtained by assigning costs to masses of similar unit and then computing cost per unit on an average basis.
Eg: Retail banking, Postal delivery, Credit card, etc.

(iii) Hybrid Method: combination of both (i) and (ii) above.

(2) Give an appropriate cost unit for each of the following service sectors.

Service Sector	Cost Unit
Hotel	Bednights available or occupied
School	Student hours or number of full time students.
Hospital	Patient-day / Room-day
Accounting Firm	Client hours
Transport	Passengers-kms, or Quintal km or Tonne-km
Staff Canteen	No of meals provided or no. of staff.
Machine maintenance	Maintenance hours to user departments
Computer Department	Computer time to user departments.

(3) Explain the main characteristics of Service sector Costing.

(a) Activities are labour intensive:

- The activities of service sector generally are labour intensive. The direct material cost is either small or non-existent.

(b) Cost-unit is usually difficult to define:

- The selection of cost units usually, for service sector is difficult to ascertain as compared to the selection of cost unit for manufacturi sector.

(c) Product costs in service sector:

- costs are classified as product or period costs in manufacturing sector for various reasons.

(4) "Customer profile is important in charging cost." Explain this statement in the light of customer costing in service sector.

- Customer costing is a new approach to management. The central theme of this approach is customer satisfaction. In some service industries, such as public relations, the specific output of industry may be difficult to identify and even more difficult to quantify. Further, there are multiple customers, identifying support activities i.e. common costs with particular customer may be more problematic. In such cases it is important to cost customer.

An ABC analysis of customer profitability provides valuable information to help management in pricing customer. Consider a banking sector. A bank's activities for a customer will include the following activities:

(i) Stopping a cheque
(ii) Withdrawal of cash
(iii) Updation of pass book
(iv) Issue of duplicate pass book.

(v) Returning a cheque because of insufficient funds
(vi) Clearing of a customer's cheque.

Different customers or categories of customers use different amount of these activities and so customer profiles can be built up and customer can be charged according to the cost to serve them.

Customer Profile is important in analyzing cost under the following categories:

(1) Customer Specific Costs: These are the direct and indirect cost of providing service to customer plus customer related cost assigned to each customer.

(2) Customer-line categories: These are the costs which are broken into broad categories of customers and not individual customers.

(5) Explain pricing of service sector.

- The service sector follows a different approach for pricing their services. Although a service has no physical existence it must be priced and billed to customers. Most service organizations follow a time and material pricing to arrive at the price of a service.

Service companies like Appliance Repair Shops and Automobile Repair Business arrive at prices by using 2 computations, one for labour and another for materials and parts. As with a cost based approach, a mark-up percentage is used to add the cost of overhead to the cost of labour, materials and parts. If materials and parts are not a part of service being performed, then only direct labour cost are used as basis for determining price. For professionals such as Accountants and consultants, a factor representing all overhead cost is applied to the base labour cost to establish a price for the services.

12: LIFE CYCLE COSTING

(i) What is Total Life-Cycle Costing approach? Why is it important?

- Life cycle costing estimates, tracks and accumulates the costs over a product's entire life cycle from its inception to abandonment or from the initial R&D stage till the final customer servicing and support of the product. It aims at tracing of costs and revenue on product by product basis over several calender periods throughout their life cyle. Costs are incurred along the product's life cycle starting from the product's design, development, manufacture, marketing, servicing and final disposal

The objective is to accumulate all the costs over a product life cycle to determine whether the profits earned during manufacturing phase will cover the costs incurred during the pre and post manufacturing stages of product life cycle.

Importance:

(i) When non-production costs like cost associated with R&D, design, marketing, distribution and customer service are significant, it is essential to identify them for target pricing, value engineering and cost management.

(ii) There may be instances where the pre-manufacturing cost like R&D and design are expected to constitute a sizeable portion of life cycle costs when a high percentage of total life cycle costs are likely to be so incurred before the commencement of production, the firm needs an accurate prediction of costs and revenue during the manufacturing stages to decide whether the costly R&D and design should be undertaken

(iii) Many costs are locked in at R&D and design stages.

c2) Explain the essential features of life cycle costing

- Product life cycle costing involves:
  - Tracing of costs and revenue of product over several calender period - throughout their life cycle.
  - Emphasis is on cost and revenue accumulation over the entire life cycle of the product.
  - Life cycle costing traces research and design
  - It focuses on development costs, incurred to individual products over their entire life cycles
  - Total magnitude of R&D costs are reported and compared with product revenues generated in later periods.

13: BUDGET & BUDGETARY CONTROL

(1) What are the various formulas that are used in calculating Budgeted Ratios ?

- Efficiency Ratio = (Standard Hours / Actual Hours) x 100
- Activity Ratio = (Standard Hours / Budgeted Hours) x 100
- Calender Ratio = (Available working days / Budgeted working days) x 10
- Std. Capacity Usage Ratio = (Budgeted Hours / Max. possible hours in the budgeted period) x 100
- Actual Capacity Usage Ratio = (Actual hours worked / Maximum possible working hours in a period) x 100
- Actual Usage of Budgeted Capacity Ratio = (Actual working hours / Budgete hours) x 100

(2) What is Zero Based Budgeting? Describe its process and state its advantages and disadvantages.

- ZBB is defined as a method of budgeting which requires each cost element to be specifically justified, as though the activities to which the budget relates were being undertaken for the first time. ZBB is prepared and justified from zero, instead of simply using last year's budget as a base.

- ZBB involves the following steps:
  (i) Corporate objectives should be established and laid down in detail.
  (ii) Decide about the techniques of ZBB to be applied.
  (iii) Identify those areas where decisions are required to be taken.
  (iv) Develop design programmes and rank them in order of preference.
  (v) Preparation of budget, that is translating decision packages into practicable units/items and allocating financial resources.

(2) • Advantages of ZBB:

(i) It provides a systematic approach for evaluation of different activities and ranks them in order of preference for allocation of scarce resources.

(ii) It ensures that various functions undertaken by the organisation are critical for the achievement of its objectives and are being performed in the best way.

(iii) It provides an opportunity to the management to allocate resources for various activities only after having a through cost-benefit analysis.

(iv) The area of wasteful expenditure can be easily identified and eliminated.

(v) Departmentals budgets are closely linked with corporate objectives.

(vi) The technique can also be used for the introduction and implementation of the system of "management by objective".

• Disadvantages of ZBB:

(i) Various operational problems are likely to be faced in implementing the technique.

(ii) Full support of top management is required.

(iii) It is time consuming as well as costly.

(iv) It requires proper trained managerial staff.

(3) Distinguish between Traditional and Zero Based Budgeting.

Traditional Budgeting	ZBB
• Accounting Oriented	• Responsibility Accounting oriented
• Reference is past budget. Some managers only inflate them	• Fresh approach without any previous reference. Nothing is taken into account without justification
• Routine Approach	• Investigative Approach.

(4) Describe the key elements that would be included in Kitchen King's Balance score card.

- Kitchen King Balance Scorecard should describe its product differentiation strategy. The key points that should be included are:

  - Financial Perspective – Increase in operating Income by charging higher margins on Maharaja.
  - Customer Perspective – Market share in high-end kitchen range market and customer satisfaction.
  - Internal Business Perspective – Manufacturing quality, order delivery time, on time delivery and new product feature added.
  - Learning and Growth Perspective: Development time for designing new end product and improvement in manufacturing process.

(5) Explain briefly the major components of a Balanced Score Card.

- A well designed balanced score card combines financial measures of past performance with measures of the firm's drivers of future performance.

Generally, the Balance Score Card has the following perspectives from which a company's activity can be evaluated:

(1) Customer Perspective i.e. how customers see us?
(2) Internal Perspective i.e. in what process must the firm excel?
(3) Innovation & Learning Perspective i.e. can we continue to improve and create value?
(4) Financial Perspective: i.e how we look to our share holders?

(6) Explain briefly the stages involved in the process of Benchmarking.

- The process of benchmarking requires a company to identify the areas i.e processes, activity, etc which are central to its business and then select the top performing companies in this process.
- The benchmarking process is comprised of following stages:

(1) Planning
  (a) Determination of benchmarking goal statement.
  (b) Identification of best performance.
  (c) Establishment of the benchmarking or process improvement team
  (d) Defining the relevant benchmarking measures.
(2) Collection of data and information.
(3) Analysis of findings based on data collected
(4) Formulation and implementation of recommendation.
(5) Constant monitoring and reviewing.

(7) What are benchmarking code of conduct?

- Benchmarking is the process of identifying and learning from the best practices anywhere in the world. It is a powerful tool for continuous improvement. To contribute to efficient, effective and ethical benchmarking, individuals agree for themselves and their organisation to be abided by the following principles for the benchmarking with other organisations.
- Suggested benchmarking code of conduct:
  (i) Principle of legality
  (ii) Principle of exchange
  (iii) Principle of confidentiality
  (iv) Principle of use.

14°. ACTIVITY BASED COSTING

(1) "Cost can be managed only at the point of commitment and not at the point of incidence. Therefore, it is necessary to manage cost drivers to manage cost."
Explain the statement with reference to structural and executional cost drivers.

- A firm commits costs at the time of designing the product and deciding the method of production It also commits cost at the time of deciding the delivery channel. Costs are incurred at the time of actual production and delivery. Therefore, no significant cost reduction can be achieved at the time when cost are incurred.
Therefore, it is said that costs can be managed at the point of commitment.
Cost drivers are factors that drive consumption of resources Therefore, management of cost drivers is essential to manage cost. Structural cost drivers are those which can be managed by effecting structural changes. For eg: scale of operation, scope of operation (i.e degree of vertical integration), complexity, technology and experience or learning. Thus, structural cost drivers arise from the business model adopted by the company.
Executional cost drivers can be managed by executive decisions. For eg. capacity utilization, plant layout efficiency, product configuration and linkages with suppliers and customers.
It is obvious that cost drivers can be managed only at the point of structural and operating decision, which commit resources to various activities.

(Q7) What is the fundamental difference between ABC system and Traditional costing system?
Why more and more organisation in both the manufacturing and non-manufacturing industries are adopting ABC?

- In the traditional system of assigning manufacturing overheads, overheads are first allocated and apportioned to cost centres (i.e. production and support service cost centres) and then absorbed to cost objects (i.e. products).
  Under ABC, overheads are first assigned to activities or activity pools (group of activities) and then they are assigned to cost objects.
  Thus, ABC is a refinement over the traditional costing system.
  Usually, cost centres include a series of different activities. If different products create different demands on these activities, the TCS fails to determine the product cost accurately. In that situation, it becomes necessary to use different rates for different activities.
- Reasons for adoption of ABC:
  (i) Fierce competitive pressure has resulted in shrinking profit margin. ABC helps to estimate cost of individual product or service more accurately. This helps to formulate appropriate marketing strategy.
  (ii) There is product and customer proliferation.
  (iii) It improves accuracy of accounting for support service costs.
  (iv) Cost associated with bad decisions have increased substantially.
  (v) Reduction in the cost of data processing has reduced the cost of tracking resource consumption to large number of activities.

15: STANDARD COSTING

(1) What are the features of Partial Plan Cost Accounting procedure?

- Standard cost operations can be recorded in the books of accounts by using Partial Plan. Features of partial plan of standard costing procedure are as follows:

(i) Partial Plan System uses current standards in which the inventory will be valued at current standard cost figure.

(ii) Under this method, WIP account is charged at the Actual cost of Production for the month and credited with the Standard cost of the month's production of finished product.

(iii) The closing balance of WIP is also known as Standard cost. The balance after making the credit entries represent the variances from Standard for the month.

(iv) The analysis of variances is done after the end of the month.

(2) Under the Single Plan, record the journal entries

(i) Material Price Variance (on purchase of materials)

(ii) Material Usage Variance (on consumption)

(iii) Labour Rate Variance.

(i) Material Control A/C Dr.
To Material Price Variance A/C
To Creditors A/C
(Being price variance during purchase of materials)

(ii) WIP Control A/C Dr.
To Material Usage Variance A/C
To Material Control A/C
(Being recording of usage variance at Std cost of excess/under utilized quantity)

(iii) Wages Control A/c Dr
To Labour Rate Variance A/c
To Cash A/c
(Being entry to record wages at Std rate)

(3) How are cost variances disposed off in a Std. Costing System? Explain.

- There is no unanimity of opinion among Cost Accountants regarding the disposition of variances. The following are commonly used methods for their disposition:
  (1) Transfer all variances to P&L A/c. Under this method, Stock of WIP, finished goods/stock and cost of sales are maintained at standard cost and variances arising are transferred to P&L A/c.
  (2) Distributing variances on pro-rata basis over the cost of sales, WIP and finished stock by using suitable basis.
  (3) Write-off quantity variance to P&L A/c and spread price variance over to cost of sales, WIP and finished goods.

(4) Describe 3 distinct group of variances that arise in Standard Costing.

- The 3 distinct group of variances that arise in standard costing are:

(i) Variances of efficiency: These are the variances, which arise due to efficiency or inefficiency in use of material, labour, etc.

(ii) Variances of prices and rates: These are the variances, which arise due to changes in procurement price and standard price.

(iii) Variances due to volume: These represent the effect of difference between actual activity and standard level of activity.

· These can be summarized as under

Element of cost	Variance of Efficiency	Variance of Price	Variance of Volume
Material	Usage, Mixture, Yield	Rate	—
Labour	Efficiency, Idle Time	Rate of pay	—
- Variable	Efficiency	Expenditure	Revision
- Fixed	Efficiency	Expenditure	Revision Capacity Calendar.

(5) "Calculation of variances in Standard Costing is not an end in itself, but a means to an end". Discuss.

· The crux of standard costing lies in variance analysis. Standard costing is the technique whereby standard costs are predetermined and subsequently compared with the recorded actual costs.
It is a technique of cost ascertainment and cost control. It establishes predetermined estimates of the cost of products and services based on management's standards of efficient operation. It thus lays emphasis on "what the cost should be". These should be costs are when compared with the actual costs. The difference between standard cost and actual cost of actual output is defined as the variance.

The variance in other words is the difference between the actual performance and the standard performance. The calculations of variances are simple. A variance may be favourable or unfavourable. If the actual cost is less than the standard cost, the variance is favourable, but if the actual cost is more than the standard cost, the variance is unfavourable.

They are easily expressable and do not provide detailed analysis to enable management to exercise control over them. It is not enough to know the figures of variances from month to month. We impact are required to trace their origin and causes of occurence for taking necessary remedial steps to reduce/eliminate them.

A detailed probe into the variances, particularly the controllable variances helps the management to ascertain:

(i) the amount of variance.

(ii) the factors or causes of their occurence.

(iii) the responsibility to be laid on executives and departments, and

(iv) corrective actions which should be taken to obviate or reduce the variances

Mere calculation and analysis of variance is of no use. The success of variance analysis depends upon how quickly and effectively the corrective actions can be taken on the analysed variance. In fact, variances gives information. The manager needs to act on the information provided for taking corrective action.

Information is the means and action taken on it is the end. In other words, the calculation of variances in standard cost is not an end in itself, but a means to an end.

16. TRANSFER PRICING

(i) What are the objectives of Transfer Pricing system? What are the methods of Transfer Pricing in an organisation?

- Transfer Price is the price which one division of an organisation charges for a product or service supplied to another division of the same organisation.

- The main objectives of intra-company transfer pricing are:
  (i) Emphasis on Profits
  (ii) Maximum utilisation of plant capacity
  (iii) Optimise allocation of financial resources.

- The various methods of Transfer Pricing are:

(a) Pricing at Cost: In this method, goods and services are transferred at the following costs:
  - Actual manufacturing cost
  - Standard cost
  - Full Cost
  - Full Cost plus Mark-up.

(b) Pricing at Market Price: In this method, the transfer price of goods and services transferred to other divisions are based on market prices. Since market prices are by and large determined by demand and supply.

(c) Bargained or Negotiated Prices: In this method, each decentralised units is considered as an independent unit and such units decide the transfer price by negotiations or bargaining.

(d) Multinational Transfer Pricing : Multinational companies use transfer prices to minimize worldwide income taxes, import duties and tariffs. By setting a low transfer price, the company can recognize most of the profit from the production in low-income-tax-rate country, thereby minimizing taxes and vice versa.

(2) Indicate the possible disadvantages of treating divisions as profit centres.

(1) Divisions may compete with each other and may take decisions to increase profits at the expense of other divisions thereby over-emphasizing short term results.

(2) It may adversely affect co-operation between division and lead to lack of harmony in achieving organisational goals.

(3) It may lead to reduction in the company's overall total profits.

(4) The cost of activities, common to all divisions, may be greater for decentralised structure than structural structure, thus resulting in duplication of staff activities

(5) Top management looses control by delegating decision making to divisional managers

(6) Series of control reports prepared for several departments may not be effective from view of top management.

(7) It may under utilize corporate competence

(8) It leads to complication associated with transfer pricing problems.

(9) It becomes difficult to identify and define precisely suitable profit centres.

(10) It confuses divisions results with managers performance.

(3) What are some goals of a transfer pricing system in an organization?

- It provides information that motivates divisional managers to take good economic decisions which will improve divisional profits and ultimately the profits of company as a whole.
- It provides information which will be useful for evaluating the divisional performance.
- It seeks to achieve goal congruence.
- It ensures that divisional autonomy is not undermined.

(4) In Transfer Pricing, what is the common conflict between a division and the company as a whole?

- Usually a conflict between the division of a company and the company as a whole is faced by the management of decentralized units when products and services are exchanged among different divisions of a company. Such a conflict becomes more significant in those concerns where profitability is used as criteria for evaluating the performance of each division.

The essence of decentralization is reflected in the freedom to make decisions. Under such a setup it is expected that top management should not interfere with the decision making process of it's subordinates heading different units. In other words, management of decentralised units is given autonomy to take decision. The management of such companies also expects that each division should not only achieve its own objectives but should also achieve the objective of goal congruence.

In case of failure of a division to achieve the objective of "goal congruence" the management of company may dictate their transfer price. Such inference of the management of the company is usually the main basis of conflict.

17: PRICING DECISIONS

(1) What is Penetration Pricing? What are the circumstances in which this policy can be adopted?

- This pricing policy is in favour of using a low price as principal instrument for penetrating mass markets easily. It is opposite to skimming pricing. The low pricing policy is introduced for the sake of long-term survival and profitability and hence it has to receive careful consideration before implementation. It needs an analysis of the scope for market expansion and hence considerable amount of research and forecasting are necessary before determining the price.

Penetration pricing means a price suitable for penetrating mass market as quickly as possible through lower price offers. This method is also used for pricing a new product. In order to popularize a new product penetrating pricing policy is used initially. The company may not earn profit by resorting to this policy during the initial stage. Later on, the price may be increased as and when the demand picks up. Penetrating Pricing can also be adopted at any stage of product life cycle for products whose market is approached with low initial price. Use of this policy by the existing concerns will discourage the new concerns to enter the market. It is also known as "stay-out-pricing".

Circumstances for adoption:

(a) Elastic Demand: When demand of the product is elastic to price. In other words, the demand of the product increases when price is low.

(b) Mass Production: When there are substantial savings on large-scale production, here increase in demand is sustained by the adoption of low pricing policy.

(c) Frighten Off Competition: When there is threat of competition. The prices fixed at a low level act as an entry barrier to the prospective competitors.

(2) Explain Skimming Pricing strategy.

- It is a policy where the prices are kept high during the early period of a product's existence. This can be synchronised with high promotional expenditure and in the latter years the prices can be gradually reduce. The reasons for following skitting Pricing Policy are:

(1) The demand is likely to be inelastic in the earlier stages till the product is established in the market.

(2) The gradual reduction in price in the latter years will tend to increase the sales.

(3) This method is preferred in the beginning because in the initial periods when the demand for the product is not known the price covers the initial cost of production.

(4) High initial capital outlays needed for manufacture, results in high cost of production. In addition to this, producer has to incur huge promotional activities resulting in increased costs.
High initial prices will be able to finance the cost of production particularly when uncertainities block the usual sources of capital.

(3) What is Pareto Analysis? Name some application.

- Vilpredo Pareto, an Italian economist, observed that about 70-80% of value was represented by 30-20% of volume. This observation was found to exist in many business solutions.
Analysing and focusing on 80% value relating to 20% volume helps the business in following areas:

(i) Pricing of a product (in a multi-product company)
(ii) Customer Profitability.
(iii) Stock control
(iv) Activity Based Costing (20% cost drivers are responsible for 80% of total cost)
(v) Quality Control

(4) State the general guidelines to be used in adopting a pricing policy in a manufacturing organization.

- Pricing Policy should:
  (a) encourage optimum utilization of resources.
  (b) work towards a better balance between demand & supply
  (c) promote exports
  (d) serve as an incentive to the manufacturers to maximize production by adopting improved technology
  (e) avoid adverse effect on the rest of the economy.

(5) What is Price Discrimination? Under what circumstances is it possible?

- Price Discrimination is charging different prices with respect to customers, products, places and time.

It is possible when:
  (i) the market being capable of being segmented
  (ii) the customers is not able to resell the product at a higher price.
  (iii) the competitor's undersselling is not possible

(6) What are the disadvantages of Cost Plus Pricing?

(a) It ignores demand, fails to take into account buyer's needs and willingness to pay.
(b) Fails to reflect competition adequately.
(c) Assumes correct cost estimation, whereas in multiproduct firm, costs may be arbitrarily allocated.
(d) In many decisions, incremental costs are more relevant than full cost. This is ignored.
(e) FOH depends on volume if volume is more and cost is less and vice-versa.

(7) How Pareto Analysis is helpful in pricing of product in the case of firm dealing with multi-products.

- In the case of firm dealing with multi products, it would not be possible for it to analyse price-volume relationship for all of them. Pareto Analysis is used for analysing the firm's estimated sales revenue from various products and it might indicate that approximately 80% of its total sales revenue is earned from about 20% of its products. Such analysis helps the top management to delegate the pricing decision for approximately 80% of its product to the lower level of management, thus freeing them to concentrate on the pricing decisions for products approximately 20% of which is essential for the company's survival. Thus, a firm can adopt more sophisticated pricing methods for small proportion of products that jointly account for 80% of total sales revenue. For the remaining 80% products, which account for 20% of total sales value the firm may use cost based pricing method.

18° COST CONCEPTS IN DECISION MAKING

(1) Distinguish between "Marginal Cost" and "Differential Cost".

- Marginal cost represents the increase or decrease in total cost which occurs with a small change in output. In cost Accounting variable cost represents Marginal cost.

- Differential Cost is the change (increase or decrease) in the total cost (variable as well as fixed) due to change in the level of activity, technology or production process or method of production.
In other words it can be defined as the cost of one unit of product or service which would be avoided if that unit was not produced or provided.

The main point that distinguishes marginal cost and differential cost is that change in fixed cost when volume of production increases or decreases by a unit of production.
In case of differential cost variable as well as fixed cost i.e both cost change whereas under marginal costing only variable cost change due to change in the level of activity.

(2) What are the applications of Incremental cost technique in making managerial decisions?

- The important areas in which incremental cost analysis could be used for managerial decision marketing as under:
  (i) Introduction of a new product.
  (ii) Discontinuing a product, suspending or closing down a segment of the business.
  (iii) Whether to process a product further or not.
  (iv) Acceptance of an additional order from a special customer at lower than existing price.
  (v) Opening of new sales territory and branch.

(vi) Optimizing investment plan out of multiple alternatives

(vii) Make or buy decisions

(viii) Submitting tenders.

(ix) Lease or Buy decisions

(x) Equipment replacement decisions.

(3) Explain with one example each that sunk cost is irrelevant in making decisions, but irrelevant cost are not sunk costs.

- Sunk cost is a historical cost incurred in the past. In other words it is a cost of a resource already acquired. Further decisions in respect of that resource will not be affected by it. For example, book value of machinery, hence sunk costs are irrelevant in decision making.

Irrelevant costs are not necessary sunk costs. For example, when a comparison of two alternative production methods using the same material quantity is made, then direct material cost is not affected by the decision but this material cost is not sunk cost.

(4) Explain the concept of relevancy of cost by citing 3 examples each of relevant costs and non-relevant costs.

- Relevant cost are those costs which are pertinent to a decision. In other words, these are the costs which are influenced by a decision. Those costs which are not affected by the decision are not relevant costs.

Examples of relevant costs are:

- All variable costs
- Fixed cost which vary with the decision
- Incremental costs.

Examples of non-relevant costs:

- All fixed cost are generally non-relevant
- Variable cost which do not vary with the decision.
- Book value of the asset.

(5) What are the advantages of selling above marginal cost but below total cost?

- In periods of recession, a firm may sell its articles at a price less than the total cost but above marginal cost, for a limited period. The advantages of this practice are:
  (i) The firm can continue to produce and use the services of skilled employees who are well trained and will be difficult to re-employ later if discharged.
  (ii) Plant and Machinery can be prevented from deterioration through idleness.
  (iii) The business would be ready to take advantage of the improved business conditions later.
  (iv) This avoids the competition of securing the business of the firm

(6) Is it justifiable to sell at a price below marginal cost any time? Mention the circumstances.

- It may also be justifiable to sell the product at a price below marginal cost for a limited period provided the following conditions prevail:
  (i) Where materials are of perishable nature.
  (ii) Where stocks have accumulated in large quantities and the market prices have fallen. This will save the carrying cost of stocks.
  (iii) It is essential to reduce the prices to such extent in order to popularize a new product?
  (iv) Where such reductions enables a firm to boost the sales of other products having larger profit margin.

(7) What are the two ways in which differential selling price can be used?

- Use of differential selling price which is above the marginal cost but below the total cost is resorted to in order to absorb surplus capacity. There are two ways of doing this:

(i) The firm producing a branded article may use the surplus capacity to produce the same article to be sold above marginal cost in a different market.
Dumping of goods in the export market is an example of this type of pricing.
The articles sold in the home market will recover all the fixed expenses. Since price reduction in the home market is injurious to the normal sales, it is not resorted to. Any reduction in the selling prices in the export market will not affect the price prevailing in the home market.

(ii) The firm may produce and sell a branded article say Product A, which recovers the entire fixed overheads and use the surplus capacity to produce another Product B, which may be sold at a price above its marginal cost. The overall profitability will thus increase. The manufacturer of Product B however should be confined to surplus capacity.

19: DEVELOPMENTS IN BUSINESS ENVIRONMENT

(1) What is the fundamental difference between ABC system and Traditional Costing System?

Answer given on Page No. 32

(2) What is the concept of Value Chain Analysis? Why is it important for cost management? and How can Value Analysis achieve cost reduction?

- Value Chain is the linked set of value creating activities from the basic raw material and components sources to the ultimate use of the product or service delivered to the customers.
- The six business functions contained in the value chain are
  - (i) Research & Development
  - (ii) Design
  - (iii) Production
  - (iv) Marketing
  - (v) Distribution and
  - (vi) Customes service
- The objective of value chain is to serve as means of increasing the customer satisfaction and managing costs effectively.

Coordination of the individual parts of value chain activities create conditions to improve custome satisfaction in terms of cost efficiency, quality and delivery.

A firm which performs value chain activities more efficiently at a lower cost than its competitor will be able to gain competitive advantage. The following methodology should be adopted:

(a) Identify industry value chain and then assign costs, revenue and assets to value activities.

(b) Diagonise the cost drivers regulating each value activity.

(c) Develop sustainable cost advantage either by controlling cost drivers better than the competitors or by reconfiguring the chain value-

- By analyzing cost, revenue and assets in each activity systematically a company can achieve low cost. Thus, value chain helps managers in deciding how to apply the orginazhon's valuable physical and human resource to each linked process so as to achieve cost effectiveness.

- Value Analysis can do cost reduction in the following manner:
  - By identifying and removing unnecessary components in a product which had utility earlier.
  - By introducing component substitution at a lesser cost without affecting the quality of the product.
  - By simplifying the product design.
  - By introducing alternative methods with less cost but improved efficiency.

(3) What is Target costing? It is said that implementation of target costin technique requires intensive marketing research. Explain why? and List the steps involved in target costing process with the help of a block diagram.

- Target Cost is the difference between estimated selling price of a proposed product with specified functionality and quality and the target margin. This is a cost management technique that aims to produce and sell products that will ensure the target margin. It is an integral part of product design. While designing the product, the company needs to understand what value target customers will assign to different attributes and aspects of quality.

This requires use of technique like value engineering and value analys Intensive marketing research is required to understand customer's preferences and the value they assign to each attribute and quality parameter. This insight is required to be developed most before the product is introduced.

The company plays within the space between the maximum attributes and quality that the company can offer and the minimum acceptable to target customers.
Therefore in absence of intensive marketing research, target costing technique can not be used effectively.

Target Costing Process

Set target selling price based on customer expectations & sales forecast
↓
Estb. profit margin based on long-term profit objectives & projected volume
↓
Determine target (or allowable) cost per unit (Target Selling Price less required Profit)
↓
Compare with ⟷ Estimate the current cost of new product
↓
Estb. cost reduction targets for each component and production activity, using Value Engineering and Value Chain Analysis

(4) What is Divestment Strategy? Highlight the reasons for divestments.

- Divestment involves a strategy of selling off or shedding business operations to divest the resources, so released, for other purpose. Selling off a business segment or product division is one of the frequent forms of divestment strategy. It may also include selling off or giving up the control over subsidiary where the wholly owned subsidiaries may be floated as independently quoted companies.

- Reasons for Divestment Strategy:

(1) In case of a firm having an opportunity to get more profitable product or segment but have resource constraint, it may sell off its unprofitable or less profitable division and utilize the resources so released. Cost Benefit analysis and Capital Budgeting method are the useful tool for analyzing this type of situation

(2) In case of purchase of new business, it may be found that some part of the acquired business is not upto the mark. In such type of situation, disposal of the unwanted part of business is more desirable than hold it.

(3) In case where any business segment or product or subsidiary is pulling down the profit of the organisation as a whole, it is better to cut down that operation of the product or business segment.

(5) List out the remedies available for difficulties experienced during the implementation of PRAISE.

(Activities)	(Remedies)
(1) Problem Identification	Participate in programs like brain storming, multi-voting, GD, precise definition of a proble and quantification
(2) Ranking	• Participative Approach • Sub-ordination of individual to group approac
(3) Analysis	• Lateral thinking / Brain storming
(4) Innovation	• Systematic evaluation of all aspects of each strategy.
(5) Solution	• Effective internal communication • Training of personnel / managers
(6) Evaluation	• Participative approach • Effective control system to track actual feedback system

(6) Classify the following measures under appropriate categories in a Balanced Scorecard for a Banking Company which excels in its home loan products:

(i) A new product related to life insurance is being considered for a tie up with the successful housing loan disbursement.

New product tie up – Innovation/ Learning Perspective

(ii) How different sectors of housing loans with different interest rates have been sanctioned, their volume of growth in the past 4 quarters.

Growth of volume – Financial perspective

(iii) How many days are taken to service a loan, how many loans have taken longer, what additional are to be released soon?

Time for loan/ fresh products – Customer perspective.

(7) Brief the principles associated with Synchronous Manufacturing.

- Synchronous Manufacturing is an all encompassing manufacturing management philosophy which includes a set of principles, procedures and techniques where every action is evaluated in terms of common goals of the organisation.

The 7 principles are:

(i) Focus on synchronizing the production flow than on idle capacities.
(ii) Value of time at a bottleneck resource is equal to the throughput rate of products processed by the bottle neck.
(iii) Value of time at a non bottleneck resource is negligible.
(iv) Level of utilization of a non bottleneck resource is controlled by other constraints within the system.
(v) Resources must be utilized, not simply activated.
(vi) Transfer batch should not be equal to the process batch.
(vii) A process batch should be variable both along its route and overtime.

(8) Explain the pre-requisites for successful operation of Material Requirement Planning?

(i) The latest production and purchasing schedules prepared should be strictly adhered to day to day change from predetermined schedules will cause chaos.

(ii) Raw materials, sub-assemblies and components required for production should be predetermined in quantifiable terms. Standard should be set for the consumption quantity, quality, mix and yield of raw materials for every unit of finished product.

(iii) Work-force must be appraised of the system and the need for absolute adherence to the schedules prepared.

(iv) Necessary internal control system should be developed to ensure total adherence to the schedules prepared

(v) Accuracy of the data supplied is vital to the MRP system.

(9) Explain Business Process Re-engineering.

- BPR involves examining business processes and making substantial changes in the day-to-day operation of the organization. It involves re-design of work by changing the activities.

A business process consists of activities that are linked together in a coordinated and sequential manner to achieve goals and objectives.

The aim of BPR is to improve the key business process in an organization by focusing on:

(a) Simplification
(b) Cost Reduction
(c) Improved Quality
(d) Enhanced Customer Satisfaction

(10) Differentiate between Value Added and Non value added activities in the context of ABC. Give examples.

- The value-added activities are those activities which are necessary for the performance of process. Such activities represent work that is being valued by the external or internal customers. The customers are usually willing to pay (in some way) for the service.

  For eg: Polishing furniture by a manufacturer dealing in furniture is a value added activity.

- The non-value-added activity represents work that is not valued by the external or internal customers. NVA do not improve the quality or function of a product or service, but can adversely affect cost and prices. NVA activities creates waste, result in delay of some sort, add costs to the product and services and for which the customer is not willing to pay.

  For eg: In the internal revenue service department, serching documents and the wait or delay in time in completing a case.

(11) What is Target Costing? What are the stages to the methodology?

- It is a management tool used for reducing a product cost over its entire life cycle. It is driven by external market factors. Marketing management prior to designing and introducing a new product determines a target market price. This target price is set at a level that will permit a company to achieve a desired market share and sales volume. A desired profit margin is then deducted to determine the target maximum allowable product cost.

Target costing also develops methods for achieving those targets and means to test the cost effectiveness of different cost-cutting scenarios.

Stages of Target Costing:

(a) Conception (Planning) Phase: Under this stage of life cycle, competitors products are to be analyzed with regard to price, quality, service and

support, delivery and technology. The features which consumers like to have like value is established. After preliminary testing, the company may be asked to pinpoint a market niche, it believes, is under supplied and which might have some competitive advantage.

(2) Development Phase: The design department should select the most competitive product in the market and study in detail the requirement of material. Manufacturing process along with competitors cost structure. The firm should also developed estimates of internal cost structure based on internal cost of similar products produced by the company. If possible, the company should develop both the cost structure (competitors and own) in terms of cost drivers for better analysis and cost control.

(3) Production Phase: This phase concentrates its search for better and less expensive products, cost benefit analysis in different features of a product priority wise, more towards less expensive means of production, as well as production techniques, etc.

(12) What is Theory of Constraints and what are the key measures suggested by it?

- Theory of constraints focuses its attention on constraints and bottlenecks within an organization which hinder speedy production. The main concept is to maximize the rate of manufacturing output is the throughput of the organization. This requires examining the bottlenecks and constraints.

A bottleneck is an activity within the organization where the demand for that resource is more than its capacity to supply. A constraint is a

situational factor which makes the achievement of objectives / throughput more difficult than it would otherwise, for eg: lack of skilled labour, lack of customer orders, or the need to achieve high quality in product output.

Key measures of theory of constraints:

(i) Throughput contribution: It is the rate at which the system generates profit through sales. It is defined as, sales less completely variable cost. Labour cost tend to be partially fixed and conferred are excluded normally.

(ii) Investments: This is the sum of material cost of direct materials, inventory, WIP, finished goods inventory, R&D, cost of equipment and buildings.

(iii) Other operating costs: This equals all operating cost (Other than direct materials) incurred to earn throughput contribution. Other operating cost include salaries, wages, rent, utilities and depreciation.