Cost Concepts

The term **"cost" is ambiguous and uncertain.** In general, cost means the amount of resource used in exchange for goods or services. The resources used shall be money or money's worth, which is usually expressed in monetary units. The terminology of CIMA defines cost as "the amount of expenditure (actual or notional) incurred on, or attributable to, a specified thing or activity". It may also be defined as **Cost is a foregoing, measured in monetary terms, incurred or potentially to be incurred to achieve a specific objective.**

A cost has to be looked in relation to (i) the nature of business (ii) purpose, (iii) different conditions and (iv) the context in which it is used.

Classification of Costs

Costs may be classified on different bases. They can be classified as follows:

1. By time (historical, predetermined)

2. By nature of elements (material, labour, overhead)

3. By association (product or period)

4. By traceability (direct, indirect)

5. By changes in activities or volume (fixed, variable, semi-variable)

6. By function (manufacturing, administration, selling, research and development)

7. Controllability (controllable, non-controllable)

8. Analytical and decision-making (marginal, uniform, opportunity, sunk, differential etc.)

9. By nature of expense (capital, revenue)

10. Miscellaneous (conversion, traceable, normal, total)

2. Predetermined costs:

Costs are calculated before they are incurred, i.e., before the production process is completed.

These predetermined costs may further be classified into estimated costs and standard costs:

1. Estimated costs:

Costs are estimated before goods are produced. As these are purely estimates, they lack accuracy.

2. Standard costs:

These costs are also predetermined. But certain factors are analysed with care before setting up costs. Standard cost is not only a concept of cost but a technique or method of costing also.

Direct costs:

In general, production is carried on in different cost centres. Costs which can be directly identifiable with cost centres, processes or production units are known as direct costs.

Indirect costs:

If costs cannot be identifiable with cost centres or cost units, they are termed as "indirect costs".

Such costs that cannot be easily identifiable with cost centres have to be apportioned on some equitable basis. These terms should be understood properly, as the same will be applied in case of materials, labour and wages.

Material Costs

Direct materials

Indirect materials

Labour Costs

Direct labour

Indirect labour

Expenses Costs

Direct expenses

Direct expenses do not include direct material cost and direct labour cost. These expenses are incurred in respect of a specific product.

Example: cost of special pattern, drawing or layout; secret formula, hire charges of machinery to execute an order, consultancy fees to a specific job. The latest trend in cost accounting is that these expenses are not taken into account. The terminology of CIMA is also of this view. Generally, direct expenses form a small part of total cost.

Indirect expenses:

Expenses which cannot be charged to production directly and which are neither indirect material cost nor indirect wages costs are treated as indirect expenses. Examples: Rent, rates, taxes, power, insurance, depreciation.

Overheads

Overheads include the cost of indirect material, indirect labour and indirect expenses. Overheads may be classified into (i) production or manufacturing overheads, (ii) administrative overheads), (iii) selling overheads and (iv) distribution overheads.

Association with the Product

1. Prime cost:

Prime cost is the aggregate of direct material cost, direct wages and direct expenses.

2. Conversion cost:

Conversion cost is the aggregate of direct wages and factory overhead. It is the cost incurred in the factory for the conversion of raw materials into finished goods.

3. Product costs:

Costs included in inventory values are called product costs. In manufacturing organizations, raw material costs and cost incurred in the conversion of raw materials into finished products are called product cost or Inventoriable cost. For trading organizations, the cost of goods purchased, and expenses incurred in bringing them to their existing location and in saleable condition are product costs. Product cost is a full factory cost. This is shown as asset in the balance sheet till they are sold off. Product costs are included in the cost of the product. It will not affect the income till it is sold.

4. Period costs:

Period costs are costs that are charged against the revenue of a period of time in which they are incurred. Period costs are incurred on the basis of time like rent and salaries. Period costs include selling and distribution costs and administration costs. Since they are not directly associated with the product, they are not assigned to the product. They are charged to the period in which they are incurred and are to be treated as expenses. In this context, one has to distinguish between expense and expenditure. Expense is nothing but expired cost or expenditure. An organization incurs expenditure in order to acquire goods and services. The same can be said to have expired when consumption takes place, meaning thereby that it has given the intended benefit. Thus, the cost of acquisition of goods for re-sale is an expenditure. But it becomes an expense when the goods are sold and is shown in the profit and loss account.

5. Direct costs and indirect costs

6. Joint costs:

Joint costs arise when two or more products are processed at the same time or in a single operation or from a common material. To apportion joint costs among products is not an easy affair. If two or more products are produced from the same raw materials (e.g., petrol, diesel, kerosene), joint costs are incurred up to the point of separation.

Accounting Period-Wise Classification of Costs

1. Capital expenditure:

It may be defined as expenditure which results in the acquisition of or increase in an asset, or pertains to the extension or enhancement of earning capacity at a smaller cost. A capital expenditure is intended to benefit future periods. It is classified as a fixed asset. Example: Costs of acquiring land, building and machinery.

2. Revenue expenditure:

This expenditure occurs for the maintenance of assets in working condition and not intended for increasing the revenue-earning capacity. A revenue expenditure benefits the current accounting period. It is treated as an expense.

For matching of costs and revenues, the distinction between capital expenditure and revenue expenditure is inevitable.

Behaviour-Wise Classification of Costs

Variable Cost

Fixed Cost

For the purpose of cost analysis, fixed costs may be classified as follows:

1. Committed Costs:

These costs cannot be eliminated instantly. These costs are incurred to maintain basic facilities. Example: Rent, rates, taxes, insurance.

2. Policy and managed costs:

Policy costs are incurred in enforcing management policies. Example: Housing scheme for employees. Managed costs are incurred to ensure the operating existence of the company.

Example: Staff services.

3. Discretionary costs:

These are not related to operations. These can be controlled by the management. These occur at the discretion of the management.

Semi-Variable Costs

Step Cost

Step costs remain unchanged (constant) for a given level of output and then increase by a fixed amount at higher level of output, i.e., from one level of output to another higher level. Example: Salary of supervisors in a factory.

Relevant Range

A relevant range is said to be a band of activity (volume) in which a specific form of budgeted sales and cost (expense) relationship will be valid. A fixed cost is regarded as fixed only in relation to a given relevant range and a given time (budget period).

Functional Classification of Costs

Production costs

This includes the cost of direct materials, direct labour, direct expenses, primary packing expenses and all overhead expenses pertaining to production.

Administration costs

These expenses include all indirect expenses incurred in formulating the policy, directing the organization and controlling the operation of a concern. The expenses relating to selling and distribution, production, development and research functions are not to be included under this head.

Selling and distribution costs

These expenses include all expenses incurred with selling and distribution functions.

Research and development costs

These include the cost of discovering new ideas, processes or products by research and the cost of implementation of such results on a commercial basis.

Pre-production costs

When a new manufacturing unit is started or a new product is launched, certain expenses are incurred. There would be trial runs. All such costs are called preproduction costs. They are charged to the cost of future production because they are treated as deferred revenue expenditure.

Costs for Planning and Control

Controllable cost

Uncontrollable costs

Standard costs:

Standard costs are closely related to budgets, and both are said to be complementary to each other. A standard cost is a predetermined calculation of how much costs should be under specific working conditions. It is built up from an assessment of the value of cost elements and correlates technical specifications and quantification of material, labour and other costs to the prices and/or wage raves expected to apply during the period in which standard cost is intended to be used. Its main purposes are to provide bases for control through variance accounting, for valuation of stock, and work-in-progress and in some cases, for fixing selling prices.

Costs for Analytical and Decision-Making Purposes

Imputed costs:

Imputed costs do not involve actual cash outlay (cash payment). They are not recorded in the books of accounts. They are not measurable accurately. However, imputed costs are useful while taking decisions.

Imputed costs can be estimated from similar situations. Imputed costs can be estimated from similar situations outside the organization. Although these are hypothetical costs, in making comparison, in performance evaluation, in making decision, the inclusion of imputed costs is inevitable. Examples: Interest on invested capital, rental value of company-owned building, salaries of owner-directors of sole proprietorship firms.

Sunk costs:

Sunk cost is invested cost or recorded cost. A sunk cost is one which has been incurred already and cannot be avoided by decision taken in future. Sunk cost may be defined as "an expenditure for equipment or productive resources which has no economic relevance to the present decision-making process". Sunk cost is a past cost which cannot be taken into account in decision making. Sunk cost may also be defined as the difference between the purchase price of an asset and its salvage value. Non-incremental costs (i.e., cost which do not increase) are also, at times, termed as sunk costs (one specific group of non-incremental costs).

Differential costs:

Differential costs arise on account of the change in total costs associated with each alternative. Differential cost consists of both variable and fixed costs. The differential cost between any two levels of production is (i) the difference between two marginal costs (variable cost) at these two levels and (ii) the increase or decrease in fixed costs. A

distinction has to be understood between differential cost and incremental cost. Incremental cost applies to increase in production and restricted to cost only, whereas differential cost confines to both increase and decrease in output.

Differential cost is of much use in decision-making process, especially in choosing the best alternative and in ascertaining profit where additional investments are introduced in the business.

Opportunity costs:

Opportunity costs are the economic resources which have been foregone as the result of choosing one alternative instead of another. The unique feature of an opportunity cost is that no cash has changed hands. There is no exchange of economic resources. It results from sacrificing some action. They are never shown in regular cost accounting records.

Postponable costs:

These are costs which may be postponed to the future with little or no effect on current operations. Actually it means deferring the expenditure to some future date. It does not mean that the cost is avoided and rejected summarily. Example: Repairs and maintenance.

Avoidable costs:

By choosing one alternative, costs may be saved. That means by avoiding one, and choosing another, costs can be saved. Example: By not manufacturing a new product, the appropriate direct material, labour and variable costs can be avoided.

Out-of-pocket costs:

Out-of-pocket cost means those elements of cost which warrant cash payment in the period under consideration. This is helpful in deciding whether a particular venture will at least return the cash expenditure caused by the expected project. Example: Taxes, insurance premium, salaries of supervisory staff, etc.

Relevant costs:

Relevant costs are those expected future costs that differ between alternatives. It is a cost affected by a decision at hand. Historical costs are irrelevant to a decision. It is reasonable because it helps to ascertain whether the costs are relevant to a particular decision at the present condition. In general, variable costs are affected by a decision and so they are considered relevant.

Uniform costs:

Generally they are not distinct costs as such. According to this, common costing principles and procedures are being adopted by a number of firms. These costs are mainly intended for inter-fi rm comparison.

Marginal costs:

It is the aggregate of variable costs. It is useful in various ways for the management.

Common costs:

Common costs are those costs which are incurred for more than one produce, job territory or any other specifi c costing object. The National Association of Accountants defines common costs as "the cost of services employed in the creation of two or more outputs, which is not allocable to those outputs on a clearly justified basis".

Other Costs

Normal cost:

This cost is incurred at a given level of output in the conditions that level of output is achieved.

Traceable cost:

This cost can be easily identified with a product or job or process.

Total costs:

It denotes the sum of all costs in respect of a particular process or unit or job or department or even the entire organization.

Cost Objects:

Cost object is anything in respect of which a separate measurement of cost is desirable. There are several purposes of cost accumulation. Keeping in view the objectives of cost accumulation, the objects for which costs are computed are to be identified. These are known as cost objects. To illustrate, when it is shown that the cost of production centre is Rs. 1,00,000, it means that the cost centre is the production centre whose cost is Rs. 1,00,000. Cost objects are of the following types: cost unit and cost centre.

Cost Unit

The terminology of CIMA defines cost unit as "a quantitative unit of product or service in relation to which costs are ascertained". It refers to a unit of product or service or time or combination of these which are to be used for the purpose of ascertainment of cost through the process of allocation, apportionment or absorption. The definition of cost unit

varies from industry to industry. The forms of measurement are the units of physical measurements such as weight, number, value, time, length and weight.

Cost Centre

Costs are to be ascertained by cost centre or cost unit or by both. To control costs effectively, the factory has to be divided into a number of departments. It will be not only unwieldy, but it loses its essence and effectiveness if whole factory is treated as a single unit. Hence subdivision of factory into a number of departments is essential. Further, these departments can be subdivided into various cost centres based on their activities. Costs collected such centre-wise may be compared with standards, budgets or estimates for the purpose of control and fixing responsibility. Examples of cost centres: work office, quality control department, sales office, milling machines.

Cost centres may be categorized into (1) personal and (2) impersonal.

Personal cost centre:

It is composed of a person or group of persons in relation to which costs are ascertained and used for the purpose of control. Examples: Factory manager, sales manager.

Impersonal cost centre:

A cost centre which consists of a location, department, plant or items of equipment is referred to as impersonal cost centre. Examples: Machine shop, milling machines.

However, the cost accountant classifies cost centres into the following categories:

Production cost centre:

Cost centres which are involved in production activity are known as production cost centres.

They are involved in the conversion of raw material input into finished goods.

Process cost centre

A process cost centre is an organizational unit. A given process or a continuous sequence of operation is carried on in that unit. For instance, fermentation process in a brewery is a process cost centre.

Service cost centre:

A cost centre which provides service to other departments is called service cost centre.

Example: Tool room in a factory, boiler house.

The proper selection of a suitable cost centre is vital for the ascertainment and control of cost.

Profit Centre

If the performance in a responsibility centre is measured in terms of both the revenue it earns and the cost it incurs, it is known as profit centre.

MCQs

Cost accountancy is the science, art and ..... of cost accountant.

a) Profession

b) Management

c) Administration

d) Practice

e) All of these

Basic objectives of cost accounting is_____.

A. tax compliance.

B. financial audit.

C. cost ascertainment.

D. profit analysis.

Which of these is not an objective of Cost Accounting?

(a) Ascertainment of Cost

(b) Determination of Selling Price

(c) Cost Control and Cost reduction

(d) Assisting Shareholders in decision making

Classification of cost is useful .

A. to find gross profit.

B. to find net profit.

C. to identify costs.

D. to identify efficiency.

Direct expenses are also called _____ .

A. major expenses.

B. chargeable expenses.

C. overhead expenses.

D. sundry expenses.

A standard which is established for use unaltered for an indefinite period is called

a) Current standard

b) Ideal standard

c) Basic standard

d) Expected standard

The cost of product as determined under standard cost system is

a) Fixed cost

b) Historical cost

c) Direct cost

d) predetermined cost

Indirect material used in production is classified as.

A. office overhead.

B. selling overhead.

C. distribution overhead.

D. production overhead.

Sale of defectives is reduced from _____.

A. prime cost.

B. works cost.

C. cost of production.

D. cost of sales.

Cost unit in a college may be

a) teacher

b) Non teacher staff

c) Student

d) Number of departments

e) None of these

Imputed cost is a_____.

A. notional cost.

B. real cost.

C. normal cost.

D. variable cost.

Opportunity cost does not involve

a) Cash inflow

b) Cash outflow

c) Cash outlay

d) Either (a) or (b)

e) None of these

Cost classification can be done in _____.

A. two ways.

B. three ways.

C. four ways.

D. several ways.

Costing refers to the techniques and processes of _____

A. ascertainment of costs.

B. allocation of costs.

C. apportion of costs.

D. distribution of costs.

Multiple costing is a technique of using two or more costing methods for ascertainment of cost by.

A. the same firm.

B. the several firms.

C. the same industry.

D. the several industries.

The cost which is to be incurred even when a business unit is closed is a.

A. imputed cost.

B. historical cost.

C. sunk cost.

D. shutdown cost.

A profit centre is a centre

(a) Where the manager has the responsibility of generating and maximising profits

(b) Which is concerned with earning an adequate Return on Investment

(c) Both of the above

(d) Which manages cost

The basic research cost should be treated as :

a. Product cost

b.Production cost

c. Production overhead

d. Period cost

Responsibility Centre can be categorised into:

(a) Cost Centres only

(b) Profit Centres only

(c) Investment Centres only

(d) Cost Centres, Profit Centres and Investment Centres

Cost Unit is defined as:

(a) Unit of quantity of product, service or time in relation to which costs may be ascertained or expressed

(b) A location, person or an item of equipment or a group of these for which costs are ascertained and used for cost control.

(c) Centres having the responsibility of generating and maximising profits

(d) Centres concerned with earning an adequate return on investment

Fixed cost is a cost:

(a) Which changes in total in proportion to changes in output

(b) which is partly fixed and partly variable in relation to output

(c) Which do not change in total during a given period despise changes in output

(d) which remains same for each unit of output

Uncontrollable costs are the costs which be influenced by the action of a specified member of an undertaking.

(a) cannot

(b) can

(c) may or may not

(d) must

Element/s of Cost of a product are:

(a) Material only

(b) Labour only

(c) Expenses only

(d) Material, Labour and expenses

Abnormal cost is the cost:

(a) Cost normally incurred at a given level of output

(b) Cost not normally incurred at a given level of output

(c) Cost which is charged to customer

(d) Cost which is included in the cost of the product

Conversion cost includes cost of converting…….into……..

(a) Raw material, WIP

(b) Raw material, Finished goods

(c) WIP, Finished goods

(d) Finished goods, Saleable goods

Sunk costs are:

(a) relevant for decision making

(b) Not relevant for decision making

(c) cost to be incurred in future

(d) future costs

Direct material is:

(a) directly identifiable with the product

(b) directly identifiable with the stores department

(c) directly associated with purchase department

(d) all of the above

Which one of the following is a direct material?

(a) diesel oil used in generators

(b) cream used in the manufacture of biscuits

(c) paints used in shop–floor painting

(d) cotton waste

Which one of the following is an indirect material?

(a) lubricants

(b) steel sheets used in the manufacture of almirahs

(c) thread used in stitching garments

(d) all of these

Single Costing, Unit Costing or Output Costing

Unit costing is a method of costing. This method is used:

1. In industries **producing identical products or a single article on a large scale**

2. Where **manufacturing process (i.e. production) is uniform**

3. **Where cost units are having identical costs ascertainment of cost per unit is to be arrived at by dividing total cost by number of units.**

Unit costing is suitable for industries manufacturing homogeneous products like sugar, bricks, cement works, collieries and breweries.

Features of Output Costing

1. Average unit cost:

Average cost per unit is computed by dividing the total costs by the number of units produced in a specified period.

2. Single product:

In this method of costing, only a single product or a number of grades of the product are involved.

3. Applicability:

This method of costing is applied to industries where the manufacturing process is not continuous.

Analysis of Cost:

The total cost is analysed in terms of **prime cost, factory cost or works cost, office cost or cost of production.**

Cost Sheet

Historical cost sheet

Historical cost sheet is to be **prepared after the costs have been incurred**. It is prepared based on the costs that have been incurred actually. It is prepared periodically. If it is prepared at shorter intervals, comparisons can be made and effective decision-making can be made for cost control.

Estimated Cost Sheet

Actually, it is **prepared before the commencement of production**. It is prepared based on the estimated data. It is prepared at regular intervals. The estimated costs are compared with actual costs and effective cost control and decision-making is arrived at.

Exclusion of Certain Items from Cost Sheet

1. Donations
2. Cash discount
3. Interest paid
4. Income tax paid
5. Dividend paid
6. Preliminary expenses written off
7. Goodwill written off
8. Profit or loss on sale of assets
9. Transfer to reserves
10. Provision—for taxes, bad debts etc

Production Account

It is prepared in three parts:

Part 1 → consists of the cost of production

Part 2 → consists of the cost of goods sold

Part 3 → consists of the cost of sales

Production Account

Particulars	*Amount Rs.*	*Particulars*	*Amount Rs.*
To direct materials		By cost of production c/d	
To direct labour			
To direct expenses			
PRIME COST			
To works overheads			
To add: Work-in-progress (opening)			
To less: Work-in-progress (closing)			
To less: Sales of by-products scrap etc.			
WORKS COST			
To administration overheads			
To cost of production b/d		By closing stock of finished goods	
To opening stock of finished goods		By cost of goods sold c/d	
To cost of goods sold b/d		By cost of sales	
To selling and distribution overheads			

Job Costing and Batch Costing

In an era of technological revolution, industries have grown in volume and varied in activities of production. Each industry has its own special characteristic features. One such variety is specific-order industries.

Specific-order industries are those where work consists of separate jobs or batches or contracts, each of which is authorized by a special order or contract. Elements of cost are accumulated in such type of industries.

Job costing is one of the methods of costing. It is also known as job order costing. In this system, **work is undertaken to customer's specific requirements on the basis of orders**. **Such orders are of comparatively short duration.** The work is carried out within the factory. The work passes through processes or operation activities in such a way as to identify the unit continuously till it reaches finished product.

This method of costing is used in industries which are engaged in **printing, steel structures, switch gear, heat exchangers, transformers, motors, pumps, pressure vessels, general engineering works, etc.**

Features of Job Costing

1. A job consists of a single order or contract.

2. It is a cost unit by itself.

3. Each job is unique in nature.

4. Products are not manufactured for general consumption.

5. Each order is given a job number.

6. Costs are accumulated with reference to this number.

7. Costs are ascertained for each order.

8. Generally the duration of job order is comparatively short (products).

9. An important feature of job costing is that it is possible to identify a job at each stage of its manufacturing process.

10. In job costing, it is not necessary that each job will flow through all the production cost centres in a predetermined manner.

11. The purpose of job costing is to bring together all the costs incurred for completing a job.

Procedures of Job Costing

The following procedure is followed for job costing:

Step 1: Pre-production Procedure

It starts from preparing quotations and culminates in the acceptance of quotations by customer. Tenders are floated by customers. After analysing the specific features, a detailed cost estimate is to be prepared by the design and estimation department with the assistance of costing department to quote the price. An estimation sheet is prepared after scrutinizing the reference job. Once the quotation, thus prepared based on various factors, is accepted by the customer, the manufacturer intimates in advance to the concerned departments.

Step 2: Allotment of Job Number

Every order received is given a separate distinguishing number which is referred to as job number. Every job or order is to be identified with this number throughout its production process. The main purpose of assigning job number for each job or order is for proper accounting and administrative convenience.

Step 3: Issuance of Production Order

A production order (or job order or manufacturing order) is an authorization to the factory to manufacture the job.

This order is issued by the production planning department/commercial department on the receipt of job order. It is issued to the foreman of the relevant department. Instructions to costing department are also issued simultaneously.

Step 4: Maintenance of Job Cost Card

A job cost card or job cost sheet is maintained for each job. The costs are collected and recorded for each job under separate production order number. The bases of collection of costs are:

(i) Materials: Materials requisition, bill of materials, stores requisition slip, materials issue analysis sheet.

(ii) Wages: Time and job cards, wages abstract, operation schedule, amount paid for labour for completion of one job etc. (cost of indirect labour is charged to factory overhead).

(iii) Direct expenses: Vouchers

(iv) Overheads: Generally, overhead rate is determined based on past records. Each job is charged at a predetermined rate—Standing order numbers or Cost account numbers.

All the basic documents will carry to respective production order numbers.

Step 5: Collection of Costs

1. Accounting for materials:

(i) Purchases of materials for a particular job are charged to that particular job.

(ii) Materials issued from stores are priced on suitable basis (FIFO, LIFO, weighted average) and charged to the job.

(iii) Transfer of materials from one job to another is credited to the transferor job and charged to the transferee job.

(iv) Materials returned to the stores are credited to that job.

(v) Cost of normal waste of materials is charged to the job.

Wastage relating to the process is treated as overhead. Abnormal wastage is charged to costing profit and loss account.

2. Accounting for direct labour:

(i) Cost of direct labour is charged to the job.

(ii) In case overtime occurs at the request of customer, it is directly charged to the job, whereas other overtime cost is treated as overhead.

(iii) Overtime premium, if abnormal, will be charged to costing profit and loss account.

3. Accounting of direct expenses:

(i) All direct expenses relating to a job are charged to the respective jobs.

(ii) Hiring of special machinery, subcontracting are also direct expenses.

4. Accounting for overhead:

(i) Predetermined rates are to be used for charging overheads to jobs.

(ii) Basis of apportioning overheads will have to be determined in advance.

Step 6: Job Cost Analysis

Actual costs are compared with estimates made while preparing quotation price. Variances are ascertained and analysed in detail for each cost centre and overheads. Following are the merits of job cost analysis:

(i) It helps the valuation of work-in-progress at year end.

(ii) It facilitates ascertaining profit in each job.

(iii) Estimation for future jobs can be made with accuracy.

(iv) It facilitates control and taking corrective measures.

Step 7: Job Cost Book-Keeping

Proper book-keeping is essential for job cost book-keeping.

Accounting for Work-in-Process

(i) The account is to be maintained in the cost ledger, to represent the jobs under production. (Work has been initiated but not yet completed.)

(ii) It may be maintained in any of the methods mentioned below:

(a) A composite work-in-process account for the entire factory.

(b) A composite work-in-process account for every department.

(iii) This account is periodically debited with all costs incurred for the job.

(iv) At specified intervals, a summary of completed job is prepared and the work-in-process account is credited with the cost of completed jobs.

(v) The balance in work-in-process account represents the cost of jobs not yet completed.

Batch Costing

Batch costing is that **form of specific order costing** which applies **when similar articles are manufactured in batches,** either for sale or for use within the undertaking. In most cases the costing is **similar to job costing.**

The term "batch" means a group of products of similar nature. Under this method of costing, **a batch is regarded as a single cost unit.**

• Costs are accumulated against each batch.

• Separate cost sheets are maintained for each batch of products.

• Each batch is given a separate number.

• The accounting system is similar to that of job costing, that is, material requisitions are prepared batch-wise, the direct labour is charged batch-wise, and the overheads are recovered batch-wise.

• The cost of each unit is ascertained when the batch is completed.

• This is ascertained by dividing the total cost of the batch by the number of units produced in that batch.

This method is used in organizations which manufacture items in definite batches— pharmaceutical or drug industries, components for radios, watches, drilling machines, gas cylinders etc.

Special Features of Batch Costing

(i) Batch-wise cost collection: A batch number is allotted to each batch and costs are accumulated for each batch.

(ii) **Identical products**: Items that are produced in a batch are identical in nature.

(iii**) Grouping**: It is possible to classify items into groups for the purpose of costing.

Economic Batch Quantity (EBQ)

In batch costing, the most important factor is the determination of **optimum size of the batch,** which is termed as "economic batch quantity".

To put in simple words, it is the determination of **"how much to produce".** The need for economic batch quantity arises when the rate of production is in excess of the rate of sales turnover and a decision has to be taken on the optimum size of the batch.

Two **main elements** that are associated with economic batch quantity are:

1. Set-up cost

2. Carrying costs (or) storage costs

The set-up cost is incurred for setting up tools and machines for each batch. It is a fixed amount per batch. This is incurred irrespective of the size of the batch. If there is an increase in the number of batches, the total set up cost increases. But when batch quantity increases, there is an increase in storage cost (carrying cost) followed by a decline in set-up cost. Storage cost consists of interest on capital, defective work, storage loss, obsolescence, etc.

Factors Determining EBQ

EBQ is that point where storage costs equal the set-up costs. At this point the total costs are at minimum level. EBQ is based on the following factors:

(i) cost of production (direct materials + direct wages + direct expenses + production overhead)

(ii) Set-up cost

(iii) Cost of storage

(iv) Rate of interest on capital

(v) Demand for the product

(vi) Skill of labour

(vii) Wastage of materials etc.

Contract Costing

Contract costing is that form of **specific-order costing which applies where work is undertaken to customer's special requirements and each order is of long-term duration (compared with those to which job costing applies).** The work is usually constructional and in general the method is similar to job costing.

Contract costing is **essentially a form of job costing**. **The cost of each contract is calculated separately.** The work mainly involves a constructional activity. They are of a long duration.

Special Features

1. **Activity:** In contract, the work mainly involved is construction activity.

2. Site: The work is carried out at the customer's site, away from the factory premises.

3. **Duration:** Contract work is generally of a long duration extending beyond an accounting period.

4. **Risk:** It involves risk and uncertainty.

5. **Meet requirements of customers:** Contract work is done as per the requirements of customers.

6. **Accounting contract:** Like job costing, a job-order member is assigned to each contract. Costs are accumulated and ascertained for each contract.

7. **Identifiable:** In contract costing, it is possible to identify each contract from the start to the finish.

Procedures

Just like job costing, the cost of each contract has to be ascertained separately. Treatment of items of expenses in contract accounts is explained in detail as follows (otherwise, steps in contract-costing procedure):

Step 1: **Separate Number**: Each contract is assigned a separate job number.

Step 2: **Separate Account:** A separate contract is to be opened and maintained for each contract.

Step 3: **Charging Costs:** All costs with respect to a particular contract are charged to respective contract accounts.

Step 4: **Collection of Costs.**

Accounting for Material

(i) Materials which are sent to site are charged to a particular contract account on the basis of material requisitions.

(ii) Purchases of material for a particular contract are charged to the respective contract account based on the invoices.

(iii) The transfer of materials from one contract site to another site is credited to the transferor's contract account and charged to the transferee's contract account based on the material transfer note.

(iv) The returns of material to stores are credited to the contract account on the basis of material return note.

(v) At the end of the accounting period, the stock is valued and credited to the contract accounts.

(vi) While the amount is realized from the sale of defective items, the surplus is credited to the contract account.

(vii) Unused materials after the completion of contract is valued and credited to the contract account.

(viii) Wherever the Contractee himself has supplied the materials for the contract, it is not charged to the contract account.

Accounting for Labour

(i) All labourers whoever have worked at the site should be considered as direct labour and charged to the contract account.

(ii) The salary of supervisors and other staff, who spent their whole-time attention to a contract, should be charged to contract account.

(iii) In some cases, the wages of labour or supervisory or any other staff which cannot be identified with a particular contract will be apportioned among all the contracts on a suitable basis.

(iv) Where the contract comprises several sections and is required to ascertain the labour cost of each section, each worker should be given a job card and there should be accurate time-keeping records too.

(v) In case a number of contracts are in execution, then a separate wage sheet for each contract may be maintained.

Specimen of Wages Abstract

Worker's No...	*Contract No*		*Contract No*		*Contract No*	
	Occupation	*Amount*	*Occupation*	*Amount*	*Occupation*	*Amount*
Total						

Accounting for the use of Plant

(i) The plant purchased for the specifi c use of a contract is to be charged to the contract account.

At the end of each accounting period, the written-down value of the plant is credited to the contract account.

The difference between these represents the cost or the value for the use of plant.

(ii) Another approach is to debit the depreciation charge to the contract account.

(iii) Where the plant is taken on hire, the hire charges are debited to contract account.

Accounting for Overheads (Indirect Expenses)

(i) Generally, the major portion of the expenses is specific and direct.

(ii) In case the numbers of contracts are more, the contractor may have a common office, common supervisory staff, and so on, and such common expenses incurred are to be apportioned to different contracts on a suitable basis.

Accounting for Sub-Contracts

The contractors, at times, entrust some part of the work to petty contractors at a predetermined, agreed rates.

Payments to such sub-contractors are charged to respective contract accounts.

Types of Contracts

Contracts are classified into:

1. Fixed-price contract with escalation clause

2. Cost-plus contract.

Fixed-Price Contract with Escalation Clause

Contracts of some nature extend over a long period, covering more than a few accounting periods. During such a lengthy period, there may be changes in the prices of materials, labour, and so on. At the time of acceptance of a contract, such factors have to be foreseen and estimated properly. If such factors are not taken into account, then the contractor may not be able to attain the profit target; and on account of this, even the work may come to a standstill.

In order to safeguard against this, a special clause known as **"escalation clause"** is incorporated in fixed-price contracts. Escalation clause is a provision in a contract which provides the formula to determine the amount of escalation, namely, the amount by which the contract price is to be modified when the prices of goods or services forming part of the contract change.

Contracts with escalation clause are beneficial to both contractor as well as the Contractee in case of high rise in the prices of materials, labour or other services. It protects the contractor from cost increases. At the same time, the customer is freed from paying more amounts unnecessarily. All future deliveries are governed by this clause.

Cost-Plus Contracts

Under this type of contract, the Contractee agrees to pay the contractor the contract price plus an agreed percentage above the contract price or a fixed fee. Cost-plus contracts are generally used in Government only.

• Where the estimates cannot be made or predetermined, this is suitable.

• If the service is innovative and no precedent is available, then cost-plus contracts may fit.

Guidelines to be followed in Cost-Plus Contracts

(i) Absorption-costing technique has to be employed.

(ii) Allocation and apportionment of expenses are to be based on the principles of equity.

(iii) The contract should contain clear-cut definitions of cost.

(iv) Depreciation charge of special equipments should be charged suitably.

(v) Abnormal gains and losses should be excluded.

(vi) The method of pricing the issue of materials and the methods of labour remuneration should be agreed.

(vii) Predetermined rates should form a part of contract.

(viii) The "plus" factor should be included in the contract. It should be specified in an unambiguous manner.

Incomplete Contracts and Profit

As already stated, contracts may extend beyond an accounting period. In practice, it may be found that only a certain portion of the contract has been completed and the remaining is under progress. It may take time to complete.

So, proper care should be taken while ascertaining the profits for the completed as well as the incomplete work.

There is no problem in crediting the profit on the completed work to profit and loss account (P&L A/c). But the real difficulty arises in assessing the profit for the contracts that are still under progress.

GUIDELINES TO ASSESS PROFIT ON INCOMPLETE CONTRACTS

In case of incomplete contracts, only a certain portion of the profit can be taken to P&L A/c based on the work completed. The firm must provide for the unforeseen losses and contingencies. The following are the general guidelines that may be followed for the assessment of profit on incomplete contracts:

(a) Profit should be completed on the basis of "work certified".

(b) Uncertified work should be valued at Cost.

1. In case the value of work certified is less than 25% or 1/4th of the contract price, then no profit has to be taken into consideration. The entire profit has to be kept as a reserve for meeting the contingencies.	
2. In case the value of work certified is >25% but <50% of the contract price, [>1/4th bus <1/2] *Formula:* $\frac{1}{3} \times \text{Notional profit} \times \frac{\text{Cash received}}{\text{Work certified}}$	(i) 1/3 of profit after adjusting the percentage of cash received from the customer (contractee) to be credited to P&L A/c. (ii) Balance amount of profit is kept as a reserve.
3. In case the value of work certified is ≥ 50% of the contract price [≥ 1/2] *Formula:* $\frac{2}{3} \times \text{Notional profit} \times \frac{\text{Cash received}}{\text{Work certified}}$	(i) 2/3 of profit after adjusting the percentage of cash received from the customer to be credited to P&L A/c. (ii) Balance amount of profit is kept as a reserve.
4. In case the contract is nearing completion <100% of the contract price: *Formula:* $\text{Estimated profit} \times \frac{\text{Cash received}}{\text{Work certified}} \times \frac{\text{Work certified}}{\text{Contract price}}$ **(OR)** $\text{Estimated profit} \times \frac{\text{Cash received}}{\text{Contract price}}$	(i) Estimate the total cost of completing contract and then calculate the estimated profit. (ii) Estimate the profit after adjusting for percentage of cash received and percentage of work certified.

5. Profit remaining as the reserve is shown as a deduction from the work-in-progress (WIP) on the Assets side of the Balance Sheet.

6. In case there is any LOSS, the entire amount of loss should be debited to P&L A/c.

7. **As per A S-7 (Revised),** Accounting for construction contracts, a foreseeable loss on the entire contract should be provided for in the financial statements irrespective of the amount of work done and the method of accounting followed.

8. The journal entry for transfer of profit to P&L A/c and WIP for unrealized profit is as:

Contract A/c (With total profit) Dr …

To P&L A/c (with profit transferred)…..

To WIP A/c (with profit kept as reserve)…..

WORK-IN-PROGRESS

In contract accounts, the value of work-in-progress consists of the following two items:

1. Work Certified and

2. Work Uncertified

These are shown on the Assets side of the Balance sheet under “Current Assets” as depicted below:

ABC Ltd.
Balance Sheet as on …

Liabilities	*Amount Rs.*	*Amount Rs.*	*Assets*	*Amount Rs.*	*Amount Rs.*
			CURRENT ASSETS:		
			WIP:		
			Work certified	—	
			Work Uncertified	—	
			Less: Cash received from customer	—	
			Less: Reserve for unrealized profit	—	xxxx

Certification of work and “Retention Money”

• In case of large contracts, work should not have been completed; however, payments would be made to the contractors for the work done.

• As such, at the end of an accounting period, the customer agrees to pay a part of contract price depending on the progress of the work.

• This progress of work is to be assessed by the customer’s architect or engineer or surveyor, who after assessing will issue a certificate, which is termed as the work certified.

• This certificate contains the value of work done as on the date of assessment.

• Based on the value shown in “work certified”, the customer (Contractee) pays the amount to the contractor.

• But, the customer will not pay the entire amount of the value of work certified. Generally, 70% to 80 % will be paid, as per the terms of the contract.

• The balance (remaining 20% to 30% of the value of work certified) not paid is termed as the “Retention Money”.

ACCOUNTING TREATMENT

• A memorandum of work certified is maintained.

• The cash received from the Contractee is credited to his personal account.

• The value of work is debited to WIP account and credited to the contract account.

• The WIP is shown as an asset in the Balance Sheet after deducting the amount received from the Contractee.

Work Uncertified:

• That part of work of the contract which has not been assessed by the contractee's surveyor is known as "Work Uncertified".

• This is valued at cost.

• This value is credited to the contract account and debited to WIP A/c.

• This will be transferred to the debit of contract account in the beginning of the next accounting period.

Process Costing

In certain manufacturing industries, a product has to pass through different stages and through continuous sequence of operations. For such industries the method of costing differs. For instance, in a textile industry the production process occurs continuously and through various stages—namely, carding, warping, spinning, drawing, sizing, winding, weaving, painting, and folding, and so on. Hence, the necessity arises to devise a suitable method to compute the cost of a product in such organizations. Process costing is a method of costing in such organizations. This module aims at explaining all the features with respect to process costing.

MEANING AND DEFINITION OF PROCESS COSTING

Process costing is one of the methods of costing. The cost of operating each process and the cost of transfer from one process to another are determined under this method. Process costing is a different type of cost procedure for continuous or mass production industries. In those industries, the output consists of like units, where each unit would be processed in the same manner. It is generally suitable for firms manufacturing products in a continuous flow, without any reference to specifi c orders or jobs.

Process costing may be defined as, "the costing method applicable where goods or services result from a sequence of continuous or repetitive operations or processes. Costs are arranged over the units produced during the period".

Process costing is used to ascertain the cost of a product at each operation, process or stage of manufacture. This method of costing is used in the following types of industries:

(i) Manufacturing industries such as iron and steel, textiles, glass, cement, rubber, food processing, soap, paper, biscuits, and so on.

(ii) Mining industries such as coal and oil.

iii) Chemical industries.

(iv) Public utility services such as generation of electricity, water supply, and so on.

SALIENT FEATURES OF PROCESS COSTING

The following are the features of process costing.

Costs flow from one **Process** to another

As in any manufacturing organizations, costs relating to direct material, direct wages and factory overheads are incurred here also, which are charged to process accounts. As manufacturing is continuous, the cost of the finished output of one process becomes the cost of the raw material input of the next process.

Average Unit Cost Consumption

An average cost per unit is calculated by dividing the total costs by the output in a period.

Not Distinguishable

The products are not distinguishable in the processing stage.

Normal Spoilage

The cost of normal spoilage or wastage is included in the cost of the total units produced.

Equivalent Production Computation

The units which are incomplete at each stage of production are converted into equivalent production based on the degree of incompleteness.

Work-in-Progress (WIP) at year end

At the end of the accounting period, there will be some stock of semi-finished goods or WIP. The reason is due to the continuous nature of manufacturing process. Hence, apportionment of process cost has to be made between the finished product and WIP at the end of each accounting period.

Emergence of **More Than One Product**

At the end of different processes, more than one product may be produced. They are “joint products” or “by-products”.

PROCESS LOSSES AND GAINS

Loss is inevitable in process industries. Loss arises due to chemical reactions, evaporation, shrinkage, scrapping, spoilage, and so on. Losses may be of two types—normal and abnormal. In some processes, abnormal gain may also occur.

Normal Process Loss

Normal loss is unavoidable. It arises under efficient operating conditions. It is an inherent result of the given process.

Normal loss consists of:

(a) Losses which are inherent in the process or materials

(b) Spoiled units unavoidable in the process.

Accounting Treatment:

(i) Normal loss can be estimated in advance, generally as a percentage of input based on technical estimates or past experience.

(ii) Normal loss is recorded in terms of quantity and the cost per unit is increased, as they are absorbed by units of production.

(iii) In case the scrap has some value, the same may be credited to process account.

Abnormal Loss

Any loss which is in excess of normal loss may be termed as abnormal loss. It is controllable. Abnormal loss arises due to unfavourable or unexpected conditions such as bad workmanship, sub-standard materials, machinery break down, accidents, and so on. Abnormal loss includes abnormal waste, scrap and so on.

(i) It is excluded from process costs and shown separately.

(ii) Abnormal loss has to be valued based on the average unit cost of good production. It should be treated as a period cost and written off to the costing profit and loss account (P&L A/c) of the relevant period.

(iii) The value of abnormal loss is calculated by using the formula as noted under:

$$\frac{\text{Normal cost of normal output}}{\text{Normal output}} \times \text{Units of abnormal loss}$$

(iv) If abnormal loss has got any scrap value, the same should be credited to abnormal loss account and the balance is to be written off to costing P&L A/c.

(v) All costs relating to abnormal loss is to be debited to abnormal loss account and credited to process account.

Abnormal Gain

Where the actual output from the process is more than the normal output expected, the difference is called abnormal gain. To put in other words, the quantum of loss is lesser than the estimated percentage of the normal loss and the difference is termed as “abnormal gain” or “effectives”.

Accounting treatment:

(i) Abnormal gain has to be shown separately.

(ii) It should be valued based on the average unit cost of good production and credited to the costing P&L A/c.

(iii) The value of abnormal gain is calculated by using the formula:

$$\frac{\text{Normal cost of normal output}}{\text{Units of normal output}} \times \text{Units of abnormal gain}$$

ELEMENTS OF MANUFACTURING COST

The following are the elements of production or manufacturing cost in a process industry:

Direct Materials

Direct materials or raw materials are issued to each process against authorized requisitions. Once they are processed, the same is transferred to the next process where further materials are added which continues till the raw materials are converted into finished products. At the end of each process or of each costing period, the requisitions are sorted according to their processes and their values issued on a material summary sheet. On its basis, the journal entry has to be passed to debit the various process accounts and the material control account is credited. Consumption for low-value materials are determined based on the periodical stock taking.

Direct Labour

In case of process industries, direct labour is comparatively insignificant. Where direct labour is fully occupied in a process, an analysis of their time is carried out and accordingly their wages are allocated to that process. In case a direct worker is engaged in more than one process, the time sheet is used for apportioning his time and wages to the process. The journal entry is then passed debiting various process accounts and crediting the wages control account.

Direct Expenses

Expenses incurred for a given process has to be directly charged to the respective process.

Overheads

As processes are highly automated, there will be an increase in the manufacturing overhead followed by a fall in the direct labour cost. However, in practice, several items of expenses do not associate with any particular process.

Hence, it is necessary to apportion them to various processes on a suitable basis, as shown under:

Items of Expenses	*Basis of Distribution*
1. Rents, rates and taxes	Area occupied by each process
2. Power	Horse power of plant or meter readings
3. Fire insurance	Value of asset
4. Water, gas, steam, etc.	Meter readings or technical estimates
5. Depreciation	Value of asset

Amounts of overheads are to be debited into "Manufacturing Overhead Control Account" (or) the total of overheads is to be apportioned to the process in a lumpsum.

Procedure for the Determination of "Equivalent Production"

Determination of Equivalent Production—Steps Discussed

Step 1: Consider

(i) Process loss (normal or abnormal, if any)

(ii) Opening and closing stock of WIP

(iii) Stage of completion and then calculate the equivalent production.

Step 2: Find out the net process costs and they are split into materials, labour and overheads.

Step 3: Cost per unit of equivalent production for each elements of cost are to be determined. (This is done by dividing each element of costs by the respective equivalent production units.)

Step 4: Evaluate the output finished, transferred and WIP.

The above mentioned steps are to be presented in the following accounts (statements), which mean three separate statements have to be prepared.

1. Statement of Equivalent Production

2. Statement of Cost

3. Statement of Evaluation (Apportionment of Process Costs)

JOINT PRODUCTS AND BY-PRODUCTS

In some industrial concerns two or more products are produced simultaneously. Chemical companies, refineries, flour mills, coal mines, dairies, canners and meat packers produce in their manufacturing or conversion process more than one product having equal importance. In such concerns, apportionment of costs for all the products has to be carried out. Those products which are produced are classified as (i) Joint Products and (ii) By-Products

Joint Products

Meaning and features of joint products.

Joint products may be defined as, “Two or more products separated in the course of processing, each having a sufficiently high saleable value to merit recognition as a main product”. When two or more products of equal importance are simultaneously produced, they are called “joint products”. Example: In petroleum-refining industry, petrol, naphtha, kerosene and fuel oil are obtained simultaneously. The products are not identifiable as separate products until a certain stage of production known as “split-off point”.

Features of Joint Products

1. All the products possess equal importance.

2. All joint products are treated as main products.

3. It is not possible to identify or separate a product until the split-off point is reached.

4. In the manufacturing process, no control over the relative qualities of products can be possible.

5. In a process, all the products are produced. No single product can be produced individually.

6. They are produced in huge quantities.

By-Products

Meaning and features of by-products

By-products may be defined as,

A product which is recovered incidentally from the materials used in the manufacture of recognised main products, such by-product having either a net realisable value or usable

value which is relatively low in comparison with saleable value of main products. By-Products may be further processed to increase their realisable value.

The term “by-product” is generally used to denote one or more products of a relatively small value that are produced simultaneously with a product of higher value. Such a product which has a higher value is known as the main product.

Features of By-Products

1. Manufacture of by-products is incidental to the production of main products.

2. It is not possible to avoid such products by any manufacturing control.

3. Its net-realizable value or usable value is less.

4. By-products can be sold in the original form or after further processing.

5. Accounting of by-products needs knowledge of technology.

6. By-products are produced in lesser quantities when compared with the main product.

Co-Products

Co-products represent the products that are produced in a number of varieties. The manufacture of each co-product requires different raw materials and a different processing operation altogether. Co-products differ from joint products.

It is possible to produce co-products in the desired quantities, whereas it is not possible in case of joint products.

The process of one co-product differs from that of another co-product. Whereas joint products are produced from common raw materials and common processes. Co-products can be identified at each and every stage of the manufacturing process. Whereas the joint products can be identified at split-off point only. In the manufacture of co-products, the manufacturer has control over the quality and quantity of the products whereas in the case of joint products it is not possible.

ACCOUNTING FOR JOINT PRODUCT COSTS

Allocation of Joint Costs Methods

A portion of the total joint costs has to be apportioned to each joint product properly in order to ascertain the unit product cost and P&L A/c. For such allocation of joint costs the following methods may be used:

1. Average unit cost method (simple average method)

2. Weighted average method

3. Physical measure method (physical unit method or quantitative unit method)

4. Standard cost method

5. Market value method

6. Realizable value method

Average Unit Cost Method

Joint costs are apportioned to various products based on the average cost unit. This is calculated by dividing the total manufacturing cost by total number of units produced. The logic behind the method is that since all products are turned out by the same process, it is impossible to say that one costs more to produce per unit than the other.

Physical Measure Method

Under this method, a physical base is used (volume or weight of raw materials, labour hours) in allocation of preseparation- point (split-off point) costs to joint products. This method can be used when physical units are similar. That is, the output of all joint products is measured using the same unit of measurement, for example, kilograms or litres.

Weighted Output Method

This method is also known as “points value method”. Joint costs are allocated on the basis of assigning weight factors. Factors relating to production, selling and distribution are given due consideration. The weight factors may include the amount of material used, the manufacturing process, the time involved, the type of labour used, and so on. These factors and their relative weights are combined in a single value, called the factor of conversion. This method is suitable where products produced are not homogeneous.

Standard Cost Method

Under this method, joint costs are apportioned to products on the basis of predetermined standards. Sales values are estimated after adjusting profit margin, selling and distribution expenses, and conversion costs.

The price of raw materials is determined which forms the basis for the apportionment of costs to the joint products.

Market Value Method (Sales Value Method)

In this method, joint costs are apportioned to products based on the ratio of the sales value of joint products. This results in uniform gross profit percentage for each product. This method is based on the principle that products which have the highest market value should bear the largest share of the joint costs production.

Realizable Value Method

Market value less cost to complete individual product method:

This is a variation of the market value method. It is used where one or more products require an additional processing from the split-off point. This is due to the following reasons:

(i) There may not be any ready market (or)

(ii) It may be more profitable to process further

ACCOUNTING FOR BY-PRODUCTS

The various methods used for valuing and costing by-products may be grouped as follows:

1. Cost methods and

2. Non-cost methods

Cost Methods: The Following are the Cost Methods

(i) Replacement Cost Method: This method is used by the firms whose by-products are consumed within the factory as raw materials. Production costs of the main product receive credit for providing the materials. The cost assigned to the product is the purchase cost or the replacement cost (that is in vogue in market price).

This method is mostly used in steel-manufacturing industry.

(ii) Standard Cost Method (or) Total Cost less By-Product valued at Standard: In this methods, WIP is credited with by-products' value at a standard price. The standard may be at a past average price.

(iii) Joint Cost Proration Method: Under this method, the accounting treatment is to change each product for costs after the split-off point and to apportion the joint costs between the major products and the by-products.

To put in other words, joint costs are apportioned to major products and by-products on some acceptable basis.

Non-Cost Methods

The following are the non-cost methods of accounting for by-products:

(i) Other Income Method: (Miscellaneous Income Method)

In this method, the revenue arising from the sale of a by-product is credited to P&L A/c, as an other income.

This method is suitable where the value of a by-product is small or negligible when compared with the main product. But this method suffers from a serious limitation as no value is given to the by-product stock which leads to the overvaluation of major product stock.

TRANSFER PRICES—INTER-PROCESS PROFITS

In the process costing, the finished product of one process is the raw material for the subsequent process. For such transfers, the normal cost is generally taken as a base. Some other methods are also available to determine transfer

prices. Transfer prices may be defined as, "A price related to goods or other services transferred from one process or department to another or from one member of a group to another. The extent to which costs and profit are covered by the price is a matter of policy."

For fixation of transfer prices, the following methods are widely used:

(a) Absorption Cost Method

(b) Cost-Plus-Profit Method

(c) Marginal Cost Method

(d) Standard Cost Method

Inter-Process Profits

Transfer prices may be determined by any of the above methods. The most widely used practice is "cost-plus profit method". Under this method, the output of one process is transferred to the next process on the basis of cost plus a percentage of profit. The difference between the cost and the transfer price is referred to as the "interprocess profits." These are profits made by the transfer of output from one process to the subsequent process.

Operating Costing or Service Costing

The role of service sector in the national economy has become significant nowadays. The term "service" is being used extensively under different contexts. It means services rendered by various departments within the organization or organizations providing services to outside firms, viz. personnel, maintenance, canteen, hospitals, boiler house, captive power units, hotels, road maintenance, water supply, transport—goods and passengers—educational institutions, firms—law, accounting and management consultancy—electricity companies and computer services department. Such service organizations render a variety of services. Each is unique in its inherent characteristic features. This module explains in detail computing the cost of rendering a service and its implications for management.

MEANING OF OPERATING COSTING OR SERVICE COSTING

Service costing is in use where services are rendered but articles/goods are not produced. Usually, it refers to the cost procedure used for determining the cost per unit of service rendered. Operating costing is a variant of unit or output costing. The terminology of CIMA defines service costing as "the cost of specifi c services and functions, e.g., maintenance, personnel, canteen etc. These may be referred as service centres, departments or functions."

Service costing involves the method of determination of the cost of services. The cost of providing a service is computed at ease. At the end of specified periods, the expenses (costs) of operating a service are grouped under suitable headings. The aggregate of these costs is to be divided by the quantity of services provided during the specified period to arrive at the cost per unit of service.

FEATURES OF SERVICE COSTING

(i) Cost classification: Costs are classified into variable and fixed. In case additional service is provided, variable cost will be affected.

(ii) Periodical ascertainment of costs: Under this system, the costs are ascertained periodically, generally at the end of specifi c periods.

(iii) Many stages and processes: The conversion of basic materials into services involves many stages and processes.

(iv) Valuation of work-in-progress: In this system, the valuation of work-in-progress is comparatively easy in relation to other types.

(v) Intangible products: Service organizations do not produce tangible goods. On the other hand, they are engaged in providing services to the public.

(vi) Cost unit differs: As service organizations provide a wide variety of services, it is difficult to provide a common cost unit. It differs from organization to organization.

USERS OF SERVICE COSTING

Operating costing is widely used by (i) service organizations and (ii) departments within organizations rendering services to other departments.

1. Service organizations: Organizations that are engaged in the business of rendering services to outsiders to earn profit are called service organizations. Examples of such service organisations are power generation and distribution firms, hotels, transport firms, educational institutions, consultancy firms—law, accounting and management, airlines and shipping.

2. Internal services: Departments within organization render services to the production as well as to other departments. Examples: Hospitals, canteen, boiler house, captive power generation unit, water supply and maintenance services.

COST UNIT

A cost unit is a quantitative unit of product or service in relation to which costs are ascertained. The costs incurred during a period are duty collected, analysed and expressed in terms of cost unit. The selection of proper unit is not an easy task because service organizations provide a wide variety of services. It becomes difficult to define the cost unit. The unit may be simple or composite depending upon the nature of service organizations. Below is the list of cost units used by a representative group of service organizations:

Types of Services Organizations/Departments	*Cost Unit*
1. Good transport (public carriers, trucks, good trains, etc)	per tonne-km or quintal-km
2. Passenger transportation (bus, railway)	per passenger-km
3. Power generation and distribution (electricity boards)	per kilowatt hour
4. Hospitals	per patient-bed day, per operation
5. Hotels	per room per day bed nights, etc.
6. Canteens	per number of staff, per meals served, etc.
7. Water supply	per kilolitres
8. Boiler houses	per kg of steam supplied
9. Road maintenance	per km of road maintained
10. Captive power generation unit	per kilowatt hours
11. Consulting firms	per client hours
12. Computer department	per computer time provided to user departments
13. Machinery maintenance	per maintenance hours spent in user departments

COST ANALYSIS

The costs incurred in departments rendering services or service organizations are grouped under the following heads:

(i) Fixed or standard charges.

(ii) Semi-fixed or maintenance charges.

(iii) Variable or running charges.

To ascertain the cost per unit, these charges are aggregated and divided by the number of service units during the specified period.

$$\text{Cost per unit} = \frac{\text{Total costs during the period}}{\text{Number of service units during the period}}$$

Determination of cost per unit serves the following purposes:

1. It is used for price fixation.

2. It is used for cost control.

Operating cost statements of various departments rendering services or service organizations.

TRANSPORT COSTING

Service costing method is used to ascertain the cost of services provided by an organization (transport firm) which uses its vehicles for transporting goods or passengers. In motor transport costing, the cost unit is tonne-km or passenger-km.

Objectives of Motor Transport Costing

1. Analysis of operating costs, namely, wages, full cost, insurance, repairs and maintenance.

2. Control of operating and running costs and avoidance of waste of fuel and other consumable material.

3. Comparison of cost of running and maintenance of different vehicles.

4. Assignment of costs to services provided by each vehicle.

5. To quote hiring rates.

6. To compute cost of idle vehicle and lost running time.

7. Collection and analysis of cost for cost control.

8. Cost comparison and analysis for decision-making process.

Collection of Cost Data

Costs are collected under the following heads:

(a) Standing charges or fixed costs:

(i) Salary and wages

(ii) Insurance premium

(iii) Road tax and permit fee

(iv) Interest on capital

(v) Garage costs

(vi) Administrative expenses

(vii) Wages of drivers and conductors

(viii) Rent, rates and taxes

(ix) Depreciation

(b) Running costs or variable costs:

(i) Lubricating oil

(ii) Grease

(iii) Cost of petrol/diesel

(c) Maintenance charges:

(i) Spares

(ii) Tyres and tubes cost

(iii) Painting expenses

(iv) Overhauling of vehicles

(v) Cost of repairs

(vi) Cleaner wages

(vii) Hire charges for vehicles

Fixed charges are incurred irrespective of the distance travelled by the vehicles. These expenses are not to be apportioned to individual journeys.

Running costs are incurred only when vehicles are running. These are variable costs. The variance is directly proportional to the distance travelled by the vehicles. These expenses are expressed as cost per km. Maintenance charges are semi-variable expenses. They are incurred for repairs and maintenance of vehicles.

Records

In transport costing, accumulation and control of costs are obtained through a daily log sheet and operating cost sheet.

Log Sheet

A daily log sheet is a document containing particulars relating to each journey. This is to be prepared for each vehicle. This is to be filled by the concerned driver of the vehicle. The log book is useful for the management to make proper allocation of vehicles to avoid idle running capacity. These log books provide the necessary data for suitable allocation of costs.

Performance Statement

The operating cost sheet or cost statement is to be prepared for each vehicle on a monthly basis. The operating cost sheet acts as a control instrument. The total cost and cost per unit may be compared with past figures, and performance may be evaluated with the performance statement—to be prepared separately.

BOILER HOUSE COSTING

Boiler House Engaging in Steam Production

It is treated as a separate service cost centre. Operating costing is applied in boiler house undertakings (organizations).

Boiler house is a service department providing services to production departments.

Collection of Cost Data

In large industrial concerns, the costing department collects costs for the generation and utilization of steam. The collection of costs is done under the following headings:

(i) Fuel: Fuel oil, coal, etc.

(ii) Labour: Coal handlers, stokers, ash removers.

(iii) Supervision: supervisor's salary, foreman's salary, proportionate salary of works/factory managers.

(iv) Maintenance: Repairs and maintenance of plant and equipment.

(v) Water: Cost, softening expenses.

(vi) Fixed overhead: Depreciation, rent, rates and taxes, insurance premium, interest on capital.

Cost Unit

Cost unit is "kilograms of steam". It is usually expressed in terms of per 1,000 kg of steam.

Generally, cost of producing the steam and the costs of generating the electricity are combined together and power house costing statement is prepared. The unit of cost for production of steam, as already explained, is "per kilogram" and for generation of electricity is "per kilowatt". A composite unit of cost shall be used—"kilowatt hour". In addition to cost of producing steam, cost of generating electricity is to be ascertained.

HOSPITAL COSTING

Service costing system is used in ascertaining the cost of operations of a hospital. The activities of a hospital are divided into a number of cost centres, which are:

(i) Out-patient department

(ii) Pathology centre

(iii) Wards

(iv) Operation theatre

(v) Laundry

(vi) Kitchen

Cost is collected for each such cost centres, and the cost per unit of output is ascertained with respect to each

cost centre. Costs are classifi ed into fi xed and variable for preparing operating cost sheet.

Cost unit: Different cost centres have different cost units to measure the output. Cost–output relationship

and all other relevant factors will have to be considered to select a cost unit. The following cost units are used generally:

(i) “Bed-days” for in-patients department (Ward)

(ii) “No. of patients”—for out-patients department

(iii) “In-patient day”—for kitchen

(iv) “Per-operation”—for operation theatre

Or Cost per standard operation

STAFF CANTEEN COSTING

Most of the factories have canteens for staff. They are subsidized either partly or wholly. It is manned by a supervisor who is responsible for running it. The supervisor is accountable to the works manager or personnel manager.

The major accounting headings are (i) provisions, (ii) services, (iii) labour, (iv) consumable stores and (v) miscellaneous overheads. Cost per meal can be calculated on the number of meals served; for other items such as snacks,

on the number of snacks served, and tea/ coffee: no. of tea or coffee served.

OPERATION COSTING

Operation costing may be said to be a retirement of process costing.

• A process may consist of several operations.

• Under this, each operation in each process or stage of production is separately costed.

• Operation costing involves the determination of unit operation cost by each operation which forms part of a production process.

• It may also be referred to as conversion cost (cost of labour and overheads).

• At the end of each operation, the unit operation cost is determined by dividing the conversion cost by output.

• The procedure of costing for operation is similar to that of process costing, except the material cost computation.

• An important feature is that while computing the material cost, the initial input weight has to be taken into account and not the ultimate output weight.

• When a series of operations are involved in the process of converting raw materials into the finished production, rejections (or loss) may occur at the end of each operation.

• Cumulative effect of such loss or rejection has to be taken into account to determine cost, for which final output is taken as 100 units.

• Computation involves working back from the final output to the initial input required.

MCQs with respect to All Topics

Paper mills must adopt

(A) Unit costing

(B) Process costing

(C) Job costing

(D) Contract costing

Which one is a feature of unit costing?

(a) It is based on specific order.

(b) It is for a specific contract work.

(c) Output is identical and uniform.

(d) It involves a number of processes in production.

When no estimates can be possible, the suitable method is

(a) Fixed-price contract

(b) Cost-plus contract

(c) Fixed-price contract with escalation clause

(d) All of these

Profit remaining as Reserve in Contract is

(a) Transferred to P&L A/c

(b) Deducted from WIP

(c) Not taken into account in costs

(d) Debited to cost price of contract

When a contract work is completed to the extent of 20% of the contract price, profit to be credited to P&L A/c is

(a) Nil

(b) Full amount

(c) 1/3 of profit

(d) 2/3 of profit

Cost of a contract is determined by preparing

(a) Cost sheet

(b) Profit and Loss Account

(c) Balance Sheet

(d) Separate ledger account

Unit costing is also known as

(a) Single operation costing

(b) Contract costing

(c) job costing

(d) Marginal costing

Cost of material lost or destroyed

a) is credited to the Contract Account

b) is debited to the Contract Account

c) is debited to the Costing Profit and Loss Account

d) is credited to the Costing Profit and Loss Account

Contract Costing is suitable of

(a) Bakery

(b) Brick

(c) Construction

(d) Chemicals

Unit costing is a

(a) Technique

(b) Method

(c) Quotation

(d) Tender

Which one of the following is not a feature of job costing?

(a) work flow structure is not predetermined

(b) unique nature of work

(c) custom-made work

(d) Work is of long duration

Where materials used and work performed differs product to product, which one of the methods would be more suitable?

(a) Job costing

(b) Batch costing

(c) contract costing

(d) process costing

T Company completed two jobs whose costs total to Rs 1,20,000. Which one of the following is one effect of this transaction?

a) Manufacturing Overhead increases by Rs 1,20,000

b) Cost of Goods Sold increases by Rs 1,20,000

c) Work in Process decreases by Rs 1,20,000

d) Finished Goods decreases by Rs 1,20,000

N Corporation incurred Rs. 8,000 indirect labour and Rs. 42,000 direct labour . Which one of the following is one effect to recording this transaction?

a) Indirect labour increases by Rs 8,000

b) Work in process increases by Rs 50,000

c) Manufacturing costs increase by Rs 42,000

d) Manufacturing overhead increases by Rs 8,000

Job costing is suitable for

(a) Firms manufacturing goods to customer's specific requirements

(b) Firms manufacturing small articles in large numbers

(c) firms manufacturing goods for common use

(d) Firms manufacturing goods on a continuous basis

WIP in contract means

(a) Work certified

(b) Work certified and work uncertified

(c) Work uncertified only

(d) None of these

Manufacturers of components of television adopt

(a) job costing

(b) Batch costing

(c) Contract costing

(d) single or output costing

Which of the following statement is correct with regard to job costing?

A. Job costing differs from most other types of costing system because each cost unit is a job, and no two jobs are exactly the same. Each job is costed separately.

B. The expected cost of a job has to be estimated so that a price for the job can be quoted to a customer.

C. A costing system should also calculate the actual cost of each job that has been carried out to work out the relative profitability of relevant jobs.

D. All of the above are correct

The cost of indirect labour used in the factory is recorded as a

a) Credit to work in process

b) debit to manufacturing overhead

c) Credit to wages payable

d) debit to wages expense

At the level of production of economic batch quantity, which of the following costs is minimum?

(a) set-up cost

(b) storage cost

(c) Total cost

(d) Carrying cost

To compensate the price rise, one of the following clauses is provided:

(a) Penalty clause

(b) Bonus clause

(c) Escalation clause

(d) None of these

When no estimates can be possible, the suitable method is

(a) Fixed-price contract

(b) Cost-plus contract

(c) Fixed-price contract with escalation clause

(d) All of these

Transformer manufacturers adopt

(a) batch costing

(b) contract costing

(c) Job costing

(d) Process costing

The items recorded on job cost sheet would include:

(a) Job number, description of job, specifications, etc.

(b) Customer details, estimated costs, selling price, estimated profit

(c) Delivery date promised, actual delivery date, delivery note number

(d) All of the above

Job costing is used in

(a) chemical manufacturing

(b) ship-building

(c) brick-making

(d) cement production

Job costing is used when a business entity carries out tasks or jobs to meet specific customer orders.

A. The above statement is false

B. The above statement is true

C. Partly True

D. None

Where the job is of large and longer duration, the suitable method of costing is

(a) Contract costing

(b) Job costing

(c) Batch costing

(d) Backflush costing

Profit in incomplete contract is known as notional profit because

(a) It is not real profit

(b) Real profit will be ascertained when the work is complete

(c) There is no such incomplete contract

(d) The profit is only an approximation

The items recorded on job cost sheet would include:

A. Job number, description of job, specifications, etc.

B. Customer details, estimated costs, selling price, estimated profit

C. Delivery date promised, actual delivery date, delivery note number

D. All of the above

Loss arising to incomplete contract is

(a) Transferred to P&L A/c

(b) Debited to WIP

(c) Debited proportionately to WIP

(d) Not dealt in cost accounts

A job is a cost unit which consists of a single order or contract.

A. True

B. False

C. Partly True

D. None

Identify the types of specific order costing.

A. Job costing

B. Batch costing

C. Process costing

D. Both A&B only

Specific order costing methods are appropriate for organizations which produce cost units which are separately identifiable from one another.

A. The above statement is correct

B. The above statement is incorrect

C. none

D. none

If the profit are 50% of operating cost, it is ……. of invoice price.

A. 20%

B. 25%

C. 16.66667%

D. 33.33334%

An example of composite unit in transport costing is:

A. Per passenger per km

B. Per passenger per seat

C. Per km per seat

D. Per passenger per travel

In Transport costing _____ will not in direct proportion to kilometers run?

(A) Operating Expenses

(B) Standing Expenses

(C) Running Expenses

(D) Direct Expenses

Service Costing neither is nor used in one of the following.

(A) Electricity

(B) Hospitals

(C) Transport

(D) Electronics

Service costing is also called as:

A. Operating Costing

B. Non-Operating Costing

C. Overhead Costing

D. Product Costing

Maintenance charges like tyres and tubes, repairs and paintings overhauls etc are in the nature of.

(A) Variable Expenses

(B) Fixed Expenses

(C) Semi-Variance Expenses

(D) Running Expenses

The distance covered by a tourist bus between Delhi to Chandigarh and back on the same day is 150 kms, one way. The bus will, make 8 trips in a month with occupancy of 90%. The seating capacity of the bus is 50. The total passenger-kms, in a month are_____

(A) 1,00,000

(B) 1,08,000

(C) 1,20,000

(D) 90,000

Total passengers - kms per month = 150 kms. x 2 x 8 times x 50 seats x 90 / 100 = 1,08,000

A transport services company is running 4 buses between two towns/the distance of which as 50, kms.. Seating capacity of each bus is 40 passengers. The seating capacity utilized was 75%. All the four buses run on all days of the month. Each bus had made on round trip daily. The numbers of passenger kms are:

(A) 3,60,000

(B) 1,20,000

(C) 2,40,000

(D) 3,20,000

Total Passenger - kms = 4 buses x 50 kms x 2 x 30 days x 40 passengers x 75/100 = 3,60,000

The Seating capacity of a school bus is 60 students one way, The seating capacity is fully occupied during the whole year. The school follows differential bus fees based on distance travelled as under :

Distance to and from school	Bus fee	student availing the facility
4 kms.	25% of full	15%
8 kms.	50% of full	30%
16 kms.	Full	55%

The total students' equivalent to 25% fare students is:

(A) 264

(B) 336

(C) 396

(D) 354

	(equivalent Students)
4 Kms. (120 students x 15/100)	18
8 kms. (120 students x 30/100 x 2/1)	72
16 Kms. (120 students x 55/100 x 4/1)	264

Total Students equivalent to 25% fare students 354

Boiler house costing is an example of:

A) Process Costing

(B) In-house costing

(C) Service Costing

(D) Output Costing

A hotel has a capacity of 100 single rooms and 20 doubles rooms. The average occupancy of both single and double rooms is expected to be 80% throughout the year. The total notional single rooms/day is _____. The rent of double room has been fixed at 125% of the rent of a single room.

(A) 36,500

(B) 35,040

(C) 29,200

(D) 5,840

Single room occupancy = 100 Rooms x 365 days x 80/100 29,200

Double room occupancy = 20 rooms x 365 days x 80/100

National Single room days = (29,200 x 1) + (5,840 x 1.25) = 36,500

A lorry starts with a load of 40 tonnes of goods from Section A. It unloads 16 tonnes at Station B and the rest of the goods at Section C. It reaches back directly to station A after getting unloaded with 32 tonnes of goods at Station C. The distance between A to B, B to C and then from A to C are 16 kms, 240 and 320 kms respectively.

(i) Calculate absolute tonne km.-

(A) 22,000

(B) 22,400

(C) 22,432

(D) 22,412

Absolute tonne-km = Distance x Respective weight

= (160 kms x 40 tonnes) + (240 kms x 24 tonnes) + (320 kms x 32 tonnes)

= 22,400 tonne - kms.

(ii) Calculate commercial tonne km

(A) 23,040

(B) 23,004

(C) 23,042

(D) 23,043

Commercial tonne-km = Average weight x Total distance

= (40+24+32 / 3 tonnes) x [160+240+320] kms = 23,040 tonne - kms

Operating costing system is more suitable to :

A. Product industries.

B. Contraction industries.

C. Service industries.

D. Manufacturing industries

Cost of car Rs.50,000

Residual value of the end of the 5th year Rs.10,000

Calculate monthly depreciation?

(A) Rs.8,000

(B) Rs. 8,667

(C) Rs. 667

(D) None of the above

Depreciation per month = Rs.50,000 - Rs.10,000 / 5 × 1/12

= Rs. 40,000 / 5 × 1/12 = Rs. 667

A bus carriers 25 passengers daily for 25 days and its mileage per month is 2,000 kms. Its passenger miles are_____

(A) 60,000

(B) 25,000

(C) 40,000

(D) 50,000

Passengers carried in a day = 20,000 miles /25 days = 80 miles per day

Bus passenger miles per month = 25 days x 80 miles x 25 passengers = 50,000 passengers per miles

Number of passenger kilometer= Number of passengers X……

A. Number of kms.

B. Number of seats.

C. Number of buses.

D. Number of distances.

The hospital is opened for 365 days, but bed occupancy is 25 patients per day in 120 days; and 20 beds occupied in another 80 days, Extra beds occupied during the year are 400. The patient-days of the hospital is _____

(A) 4,000

(B) 5,000

(C) 3,500

(D) 4,600

Patient days in a year = (25 patients x 120 days) (20 beds x 80 days) + 400 beds

= 3,000 +1,600+400 = 5,000

If the present cost of the car is Rs.25,000, residual value at the end of the 4th year is Rs.5,000, the monthly depreciation is _____.

(A) Rs. 4,000

(B) Rs. 416.67

(C) Rs.4,417

(D) none of the above

Depreciation per month = Rs. 25,000-Rs.5,000 / 4 x 1 /12

= Rs. 20,000 / 4 x 1/12

= 416.67

Per kilometer is an example of……..cost unit used in transport undertakings.

A. Simple

B. Composite

C. Dual

D. Joint

Classification and accumulation of costs by fixed and variable demons is of special importance in:

(A) Process Costing

(B) Unit Costing

(C) Operating Costing

(D) None of these

The production operations of most businesses can be categorized as either being:

A. Specific orders

B. Continuous operations

C. Both A or B

D. None

In transport costing one of the following will not be used as composite unit;

(A) Number of mules run

(B) Passenger mile

(C) Passenger kilometer

(D) ton kilometer

In service costing division is an / a :

A. Operation

B. Process

C. Contract

D. Department

Operating cost is the cost incurred for providing:

A. Job.

B. Operation.

C. Service.

D. Product.

Which one of the following is not a contract cost?

(a) Direct wages

(b) Depreciation of plant

(c) Sub-contractors' fees

(d) Architects' certificates

The degree of completion of work is determined by comparing the work certified with

(a) Contract price

(b) Work in progress

(c) Cash received on contract

(d) Retention money

In contract costing credit is taken only for a part of the profit on

(a) Completed contract

(b) Incomplete contract

(c) Work uncertified

(d) Work Certified

In contract costing payment of cash to the contractor is made on the basis of

(a) Uncertified work

(b) Certified work

(c) Work in progress

(d) Retention Money

Value of Work Certified Less Profit =

(a) Work-in-progress

(b) Cost of Work Certified

(c) Retention Money

(d) Cost of uncertified work

The Total Value of Work Completed during an accounting year is equal to

(a) Work Certified + Progress Payment Received

(b) Work Certified + Work Uncertified

(c) Work Certified + Retention Money

(d) None of the above

Contract costing is usually applicable in

(a) Constructional Works

(b) Textile Mills

(c) Cement Industries

(d) Chemical Industries

Notional Profit is equal to

(a) Work certified Less Cost of work certified

(b) Work certified Less Cost of work completed

(c) Payment received Less Work certified

(d) None of the above

Work-in-progress at year end is equal to

(a) only closing stock of materials

(b) only work certified

(c) only work uncertified

(d) the total of all the above

Work certified is less than 25% of the contract price. The transfer to P & L A/c will be

(a) 1/3 rd of Notional profits

(b) NIL

(c) 2/3 rd of Notional profits

(d) 100% of Notional profits

Work certified is between 25% and 50% of the contract price. The transfer to P & L A/c will be

(a) 1/3 rd of Notional profits, reduced in the ratio of cash received to work certified

(b) NIL

(c) 2/3 rd of Notional profits, reduced in the ratio of cash received to work certified

(d) 100% of Notional profits

Work certified is between 50% and 90% of the contract price. The transfer to P & L A/c will be

(a) 1/3 rd of Notional profits, reduced in the ratio of cash received to work certified

(b) NIL

(c) 2/3 rd of Notional profits, reduced in the ratio of cash received to work certified

(d) 100% of Notional profits

The entire contract is complete. The transfer to P & L A/c will be

(a) 1/3 rd of Notional profits

(b) NIL

(c) 2/3 rd of Notional profits

(d) Entire profit

The cost of any sub-contracted work is

(a) A direct expense of a contract and is debited to the contract account

(b) An indirect expense of a contract and is debited to the contract account

(c) A direct expense of a contract and is debited to the client account

(d) An indirect expense of a contract and is debited to the client account

Progress payments received by the contractor from the client are

(a) Debited to the contract account

(b) Credited to the contract account

(c) Debited to the client account

(d) Credited to the client account

If a contract is 40% complete, credit taken to the profit and loss account is

(a) 40% of the notional profit

(b) 1/3 rd of Notional profits, reduced in the ratio of cash received to work certified

(c) NIL

(d) 2/3 rd of Notional profits, reduced in the ratio of cash received to work certified

Value of work certified – Rs 5,00,000

Cost of work to date – Rs 4,00,000

Cost of work not yet certified – Rs 1,00,000

Notional Profit is

(a) Rs 1,00,000

(b) Nil

(c) Loss Rs 1,00,000

(d) Rs 2,00,000

Retention Money is equal to

(a) Work certified Less Work uncertified

(b) Contract price Less Work certified

(c) Work certified Less Payment received by contractor

(d) None of the above

The total profit on a contract for Rs 3,00,000 is Rs 60,000 and the contract is 60% complete and has been certified accordingly. The retention money is 20% of the certified value, then the amount of profit that can be prudently credited to Profit and Loss Account

(a) Rs 60,000

(b) Rs 36,000

(c) Rs 28,800

(d) Rs 48,000

Contract cost – Rs 2,80,000

Contract value – Rs 5,00,000

Cash received – Rs 2,70,000

Uncertified work – Rs 30,000

Deduction from bills by way of retention money is 10%.

How much profit, if any, you would take to the profit and loss account?

(a) Rs 50,000

(b) Rs 33,333

(c) Rs 30,000

(d) Nil

Total cost of contract to date – Rs 3,83,000

Cost of contract not yet to certified – Rs 23,000

Value of work certified – Rs 4,20,000

Cash received to date – Rs 3,78,000

Value of work-in-progress is

(a) Rs 65,000

(b) Rs 41,000

(c) Rs 23,000

(d) Rs 14,000

_____ is the person for whom the Contract job is undertaken.

(a) Contractor

(b) Contractee

(c) Sub-contractor

(d) Job-worker

Cost of material lost or destroyed

(a) is credited to the Contract Account

(b) is debited to the Contract Account

(c) is debited to the Costing Profit and Loss Account

(d) is credited to the Costing Profit and Loss Account

Material supplied by the Contractee

(a) is debited to the Contract Account

(b) is ignored in the Contract Account

(c) is credited to the Contract Account

(d) is debited to the Contractee's Account

Work Certified is valued at

(a) Cost price

(b) Market price

(c) Cost or market price whichever is less

(d) Estimated price

Contract costing is a variant of _____ Costing.

(a) Job

(b) Process

(c) Unit

(d) Batch

Contract costing is a basic method of

(a) Historical costing

(b) Specific order costing

(c) Process costing

(d) Standard costing

Unit Cost is equal to

(a) Normal Cost ÷ Normal Output

(b) Total Cost ÷ Normal Output

(c) Normal Cost ÷ Total Output

(d) Total Cost ÷ Total Output

Normal Output is equal to

(a) Input – Abnormal Loss

(b) Input – Normal Loss

(c) Input – Abnormal Gains

(d) None of the above

Normal Loss is equal to

(a) Normal Output – Actual Output

(b) Actual Output – Normal Output

(c) Input X % of Normal Loss

(d) None of the above

Abnormal Loss is equal to

(a) Input – Actual Output

(b) Actual Output – Normal Output

(c) Normal Output – Actual Output

(d) Actual Output – Input

Abnormal Gains are equal to

(a) Actual Output – Normal Output

(b) Normal Output – Actual Output

(c) Actual Output – Input

(d) Input – Actual Output

Process Cost is based on the concept of

(a) Average Cost

(b) Marginal Cost

(c) Standard Cost

(d) Differential Cost

Process cost is very much applicable in

(a) Construction Industry

(b) Pharmaceutical Industry

(c) Airline Company

(d) None of these

Which of the following statements is false?

(a) In process costing, cost is accumulated according to processes or departments

(b) In job costing, the basis of cost accumulation is job order or batch size

(c) In process costing, cost is accumulated on time basis

(d) In job costing, cost is computed at the end of the cost period

Process method is suitable for

(a) continuous or mass production industries

(b) organizations rendering services alone

(c) where the job is of a long duration

(d) production is as per customer's specific requirements

Which one of the following is not a feature of process costing?

(a) equivalent production

(b) classification of costs into fixed and variable

(c) duration of work in long

(d) emergence of more than one product

Which method of joint-product cost accounting will yield the same rate of gross profit for all products?

(a) average unit cost method

(b) standard cost method

(c) physical measure method

(d) market value method

Which of the following method is used for by-product cost accounting?

(a) weighted output method

(b) other income method

(c) FIFO

(d) LIFO

Which of the following method is used for joint-product cost accounting?

(a) market value method

(b) FIFO

(c) LIFO

(d) base stock

Which of the following is **not a** feature of joint products?

(a) not distinguishable till the split-off point

(b) can be identified at each stage of manufacture

(c) cannot be identified at each stage of manufacture

(d) possible to avoid by a managerial decision

Joint products are products

(a) produced jointly

(b) produced in a number of varieties

(c) produced simultaneously from the same raw materials

(d) all of these

Which one of the following is not a feature of by-products?

(a) sold by further processing

(b) produced incidental to the main product

(c) accounting treatment requires technical knowledge

(d) no control over relative quantities

By-products are products

(a) produced simultaneously from the same raw materials

(b) produced along with co-products

(c) anything of recoverable value produced incidental to the main product

(d) produced in a number of varieties of high value

Joint-product cost accounting involves

(a) allocation of joint costs to various products

(b) apportioning of costs jointly

(c) distribution of costs to by-products

(d) none of these

A company uses process costing to value its output and all materials are input at the start of the process.

The following information relates to the process for one month:

Input 3,000 units

Opening stock 400 units

Losses 10% of input is expected to be lost

Closing stock 200 units

How many good units were outputs from the process if actual losses were 400 units?

(a) 2,800 units

(b) 2,900 units

(c) 3,000 units

(d) 3,200 units

Details of the process for the last period are as follows:

Put into process – 5,000 kg

Materials – Rs 2,500

Labour – Rs 700

Production Overheads – 200% of labour

Normal losses are 10% of input in the process. The output for the period was 4,200 kg from the process. There was no opening and closing work-in-process. What were the units of abnormal loss?

(a) 500 units

(b) 300 units

(c) 200 units

(d) 100 units

A company uses process costing to value its output. The following was recorded for the period:

Input materials 2,000 units at Rs 4.50 per unit

Conversion costs Rs 13,340

Normal loss 5% of input valued at Rs 3 per unit

Actual loss of 150 units

There were no opening or closing stocks.

What was the valuation of one unit of output to one decimal place?

(a) Rs 11.8

(b) Rs 11.6

(c) RS 11.2

(d) Rs 11.0

Input in a process is 4000 units and normal loss is 20%. When finished output in the process is only 3,240 units, there is an

(a) Abnormal loss of 40 units

(b) Abnormal gain of 40 units

(c) Neither abnormal loss nor gain

(d) Abnormal loss of 60 units

400 liters of a chemical were manufactured in a period. There is a normal loss of 25% of the material input into the process. An abnormal loss of 5% of material input occurred in the period. How many liters of material (to the nearest liter) were input into the process in the period?

(a) 500

(b) 520

(c) 560

(d) 571

Which one of the following is not a feature of process costing?

(a) equivalent production

(b) classification of costs into fixed and variable

(c) duration of work in long

(d) emergence of more than one product

Under this method of allocation of joint costs, even high-quality items may have a lower price

(a) Contribution Margin Method

(b) Survey method

(c) Average Unit Cost Method

(d) None of the above

Under this method of allocation of joint costs, higher-priced items are charged more costs –

(a) Contribution Margin Method

(b) Market Value Method

(c) Average Unit Cost Method

(d) None of the above

This method of allocation of joint costs is useful when the products are not saleable at the spilt- off stage without further processing

(a) Market value at the point of separation

(b) Net Realizable Value

(c) Market value at finished stage

(d) None of the above

For the purpose of allocating joint costs to joint products, the sale price at point of sale, reduced by costs to complete after split-off, is assumed to be equal to –

(a) Joint Costs

(b) Total Costs

(c) Net Sales Value at split-off

(d) Sale price less normal profit margin at point of sale

A Petroleum company assigns certain value based on the calorific value to each petroleum product, and these values become the basis of apportionment of joint cost among petroleum products. This is an example of –

(a) Average Unit Cost Method

(b) Physical Unit Method

(c) Survey method

(d) None of the above

Joint Costs are normally allocated on the basis of relative

(a) Profitability

(b) Sales Value

(c) Direct Labour Hours

(d) Direct Machine Hours

In process Y, 75 units of a commodity were transferred from process X at a cost of Rs 1,310. The labour and overhead expenses incurred by the process were Rs 190. 20% of the units entered are normally lost and sold @ Rs 4 per unit. The output of the process was 70 units.

(a) Process Account Credit Side showed Abnormal Gains of Rs 240

(b) Process Account Debit Side showed Abnormal Loss of Rs 240

(c) Process Account Credit Side showed Abnormal Loss of Rs 240

(d) Process Account Debit Side showed Abnormal Gains of Rs 240

Net Realizable Value is defined as

(a) Sales value at split-off point

(b) Sales price minus fixed costs

(c) Sales price minus joint costs

(d) Sales price minus costs to complete the product

Under the Market Value Method, Joint Costs are allocated according to _____ of individual products

(a) Cost Price

(b) Market price or cost price whichever is less

(c) Sales Value

(d) Cost and Demand Price

Particulars for Process A.

Materials (200 Units) Rs 4,000

Labour Rs 3,000

Indirect Expenses Rs 2,000

Normal wastage is 5% of the input. One unit of wastage is sold at Rs 16.50 each.

(a) 190 units are transferred to next process at Rs 9,000

(b) 200 units are transferred to next process at Rs 9,000

(c) 190 units are transferred to next process at Rs 7,000

(d) 190 units are transferred to next process at Rs 8,835

Finished product of a preceding process is

(a) value of a unit cost of a product

(b) credited to process account

(c) the raw material of subsequent process

(d) all of these

Under the Average Unit Cost Method of apportionment of joint costs, the cost per unit of each product is

(a) Constant

(b) Different

(c) Same

(d) Semi-Variable

Wastage of raw material during a manufacturing process is 20% of input quantity. What input quantity of raw material is required per kg of output?

(a) 0.80 kg

(b) 1.20 kg

(c) 1.25 kg

(d) 1.33 kg

By-products and main products are differentiated by

(a) Number of units per processing period

(b) Weight or volume of outputs per period

(c) The amount of sales value per unit

(d) None of the above

All costs incurred beyond the split-off points that are assignable to one or more individual products are called

(a) By-product costs

(b) Joint costs

(c) Main costs

(d) Separable costs

12,000 kg of material were input to a process in a period. The normal loss is 10% of input. There is no opening or closing work-in-progress. Output in the period was 10,920 kg. What was the abnormal gain/loss in the period?

(a) Abnormal gain of 120 kg

(b) Abnormal loss of 120 kg

(c) Abnormal gain of 1,080 kg

(d) Abnormal loss of 1,080 kg

What will be the impact of normal loss on the overall per-unit cost?

(a) Per unit cost will increase

(b) Per unit cost will decrease

(c) Per unit cost remain unchanged

(d) Normal loss has no relation to unit cost

When production is below standard specification or quality and cannot be rectified by incurring additional cost, it is called

(a) Defective

(b) Spoilage

(c) Waste

(d) Scrap

Which of the given units can never become part of first department of Cost of Production Report?

(a) Units received from preceding department

(b) Units transferred to subsequent department

(c) Lost units

(d) Units still in process

In process costing, each producing department is a

(a) Cost unit

(b) Cost center

(c) Investment center

(d) Sales center

The cost of production of 40 units in Process I consists of materials RS 1,500; Labour Rs 1300 and Overhead Rs 164. The normal waste is 5% of input.

(a) 40 units are transferred to next process @ RS 70 each

(b) 40 units are transferred to next process @ Rs 74.10 each

(c) 38 units are transferred to next process @ Rs 78 each

(d) 40 units are transferred to next process @ Rs 78 each

Which cost accumulation procedure is most applicable in continuous mass-production manufacturing environments?

(a) Standard

(b) Actual

(c) Process

(d) Job order

You are required to identify how many good units were outputs from the process.

Units put in process – 4,000

Lost units – 500

Units in process – 200

(a) 3,300 units

(b) 4,000 units

(c) 4,200 units

(d) 4,500 units

A process gives rise, incidentally, to an item of low value, which is called

(a) A joint product

(b) A by-product

(c) Scrap

(d) Waste

Which of the following does not use process costing?

a) Oil refining

(b) Distilleries

(c) Sugar

(d) Air-craft manufacturing

When a single manufacturing process yields two products, one of which has a relatively high sales value compared to the other, the two products are respectively known as

(a) Joint products and by-products

(b) Joint products and scrap

(c) Main products and by-products

(d) Main products and joint products

Process costing is applied when

(a) Small number of different products are manufactured

(b) Large number of different products are manufactured

(c) Large number of identical products are manufactured

(d) Small numbers of customized made-to-order products are manufactured

Costs incurred prior to the point of separation of the joint or by-products are termed as

(a) Process cost

(b) Joint cost

(c) Main cost

(d) Separable cost

A chemical process has normal wastage of 10% of input. In a period, 2,500 kg of material were input and there was abnormal loss of 75 kg. What quantity of good production was achieved?

(a) 2,175 kg

(b) 2,250 kg

(c) 2,425 kg

(d) 2,500 kg

Inter-process profits are

(a) shown in WIP alone

(b) shown in balance sheet alone

(c) debited to respective process accounts

(d) none of these

Process cost is ascertained and recorded in

(a) a separate account in a ledger

(b) P&L A/c

(c) balance sheet

(d) cost statement

The disadvantage of FIFO method is

(a) units are to be kept separately

(b) some units are not taken into account

(c) several unit costs are to be calculated and used

(d) none of these

Scrap value of abnormal loss and gain are

(a) shown in balance sheet

(b) debited to P&L A/c

(c) credited to P&L A/c

(d) respective accounts in the ledger

In oil refineries, which of the methods of costing is used?

(a) job costing

(b) batch costing

(c) contract costing

(d) process costing

Scrap value of normal loss is

(a) debited to process account

(b) credited to process account

(c) debited to P&L A/c

(d) credited to P&L A/c

Equivalent unit means

(a) total work expressed in terms of fully completed units

(b) partly completed units

(c) WIP

(d) none of these

State which of the following are the characteristics of service costing.

1. High levels of indirect costs as a proportion of total costs

2. Use of composite cost units

3. Use of equivalent units

(a) (1) only

(b) (1) and (2) only

(c) (2) only

(d) (2) and (3) only

Which of the following organisations should not be advised to use service costing?

(a) Distribution service

(b) Hospital

(c) Maintenance division of a manufacturing company

(d) A light engineering company

Which of the following statements is/are correct?

1. A materials requisition note is used to record the issue of direct material to a specific job.

2. A typical job cost will contain actual costs for material, labour and production overheads, and non –production overheads are often added as a percentage of total production cost

3. The job costing method can be applied in costing batches

(a) (1) only

(b) (1) and (2) only

(c) (1) and (3) only

(d) (2) and (3) only

In process costing, a joint product is

(a) A product which is later divided into many parts

(b) A product which is produced simultaneously with other products and is of similar value to at least one of the other products.

(c) A product which is produced simultaneously with other products but which is of a greater value than any of the other products.

(d) A product produced jointly with another organization

Describe the cost unit applicable to the Bicycle industry:

(a) Per part of bicycle

(b) Per bicycle

(c) Per tonne

(d) Per day

Describe the method of costing to be applied in case of Nursing Home:

(a) Operating Costing

(b) Process Costing

(c) Contract Costing

(d) Job Costing

Batch costing is suitable for

a. Sugar industry

b. Chemical industry

c. Pharma industry

d. Oil industry

Sale of defectives is reduced from _____.

A. prime cost.

B. works cost.

C. cost of production.

D. cost of sales.

..... Costing is suitable for mines, quarries; cement works etc.

a) Process

b) Contract

c) Batch

d) Operation

e) Job

Which industry is suitable for using operating costing method?

a. Textile

b. Sugar

c. Toy

d. Transport

Abnormal cost is the cost:

(a) Cost normally incurred at a given level of output

(b) Cost not normally incurred at a given level of output

(c) Cost which is charged to customer

(d) Cost which is included in the cost of the product

Which method of costing is suitable in case of mass production industries manufacturing standardized products, wherein raw materials pass through a number of processes in a particular sequence?

a. Contract costing

b. Service costing

c. Process costing

d. Batch costing

Cost of abnormal wastage is:

(a) Charged to the product cost

(b) Charged to the profit & loss account

(c) Charged partly to the product and partly profit & loss account

(d) Not charged at all.

The method adopted by builders and civil engineering contractors for jobs involving huge capital expenditure and long time for completion is called _____ costing.

a. Process

b. Contract

c. Operating

d. Composite

Operating costing is suitable for _____.

A. job order business.

B. contractors.

C. sugar industries.

D. service industries.

Process costing is suitable for _____.

A. hospitals.

B. oil refining firms.

C. transport firms.

D. brick laying firms.

Cost incurred by undertakings which do not manufacture any product but services is

a. Operation cost

b. Operating cost

c. Joint cost

d. Sunk cost

.....is an extension of job costing

a) Process costing

b) Batch costing

c) Contract costing

d) Operation costing

e) None of these

Joint cost is suitable for

a. Infrastructure industry

b. Ornament industry

c. Oil industry

d. Fertilizer industry

In cement industry, the method of costing adopted is

a. Process costing

b. Job costing

c. Contract costing

d. Operating costing

Scrap is _____.

A. residue of material.

B. wastage of material.

C. surplus material.

D. abnormal loss of material.

When job is very big and spread over long periods of time the method of costing adopted is

a) Process

b) Job

c) Contract

d) Operation

e) Batch

Common cost of facilities or services employed in the output of two or more simultaneously produced or otherwise closely related operations, commodities or services.

a. Uniform cost

b. Common cost

c. Joint cost

d. Product cost

Which among the following will be the suitable method of treatment of realizable value scrap if it is of little value?

a. Credited to Costing P&L

b. Credited to job/ process

c. Deducted from cost of materials consumed

d. Deducted from factory Over head

Continuous costing is also called

a) Operation costing

b) Process costing

c) Batch costing

d) Contract costing

e) None of these

Process B had no opening inventory. 13,500 units of raw material were transferred in at Rs 4.50 per unit. Additional material at Rs1.25per unit was added in process. Labour and overheads were Rs 6.25 per completed unit and Rs 2.50 per unit incomplete.

If 11,750 completed units were transferred out, what was the closing inventory in Process B?

(a) Rs. 6562.50

(b) Rs. 12,250.00

(c) Rs. 14,437.50

(d) Rs. 25,375.00

In process costing, if an abnormal loss arises, the process account is generally

(a) Debited with the scrap value of the abnormal loss units

(b) Debited with the full production cost of the abnormal loss units

(c) Credited with the scrap value of the abnormal loss units

(d) Credited with the full production cost of the abnormal loss units

A process costing system for J Co used an input of 3,500Kg of materials at Rs 20 per Kg and labour hours of 2,750 at Rs 25 per hour. Normal loss is 20% and losses can be sold at a scrap value of Rs 5per

Kg. Output was 2,950 Kg. What is the value of the output?

(a) Rs 142,485

(b) Rs 146,183

(c) Rs 149,746

(d) Rs 152,986

An example of normal loss of materials is

a. Loss due to accidents

b. Pilferage

c. Loss due to breaking the bulk

d. Loss due to careless handling

In ..... costing the cost of a group of products is ascertained.

a) Process

b) Job

c) Batch

d) Service

e) Marginal

_____ System of costing is suitable for toy making.

a. Batch costing

b. Job costing

c. Operating costing

d. Process costing

.....costing is used in transport undertaking.

a) Operating

b) Standard

c) marginal

d) Absorption

e) Service

_____ System is best suited for undertaking job works.

a. Process costing

b. Job costing

c. Contract costing

d. Batch costing

Marginal v. Absorption Costing

We know that overheads can be classified into fixed overheads and variable overheads. Similarly, costs can also be classified into fixed and variable parts. Some eminent accountants opine that it is not fair to apportion fixed costs to production. They advocate for charging them against the amount arising out of excess of selling price over total variable cost. Marginal-costing technique is based on this concept. In this module, the concept of marginal costing, its special features, and all its related factors are dealt with and how this marginal-costing technique is used for making essential decisions are explained.

Marginal costing is a technique of ascertaining costs. Cost per unit is ascertained only on the basis of variable costs. Fixed costs are not taken into account to ascertain cost per unit under marginal-costing technique. Its aim is to assess the effect on profit due to changes in volume or the type of output. It is a technique of applying the costing methods in a specified way so as to bring out the relationship between profit and volume or the type of the output. The important components of marginal costing are: (i) classifi cation of costs into fixed and variable;

(ii) ascertainment of marginal costs; and (iii) Determination of effect on profit due to changes in the volume or the type of output. The term “marginal costing” is synonymous with “variable costing” or “direct costing.”

MARGINAL COST

Economists defined marginal cost as, “the amount as any given volume of output by which aggregate costs are changed if the volume of output is increased or decreased by one unit”. This can be explained through an example.

Concept of Marginal Cost—View of Economists and Accountants

But according to accountants, the marginal cost is the aggregate of variable costs which will be prime costs

plus variable overhead. For example, if we assume that for producing 10,000 units of a product of an enterprise,

Rs. 50,000 for direct materials, Rs. 30,000 for wages, Rs. 20,000 for variable overhead and Rs. 15,000 for fixed overhead are incurred, then the marginal cost can be determined as follows:

First determine the prime cost and then determine the marginal cost as marginal cost = prime cost + variable overhead.

	Rs.
Materials	50,000
Add: Wages	30,000
Prime cost	80,000
Add: Variable overhead	20,000
∴ Marginal cost	1,00,000

$$\text{Marginal cost per unit} = \frac{\text{Marginal cost}}{\text{Production}}$$

$$= \frac{\text{Rs. } 1,00,000 \text{ (Calculated as above)}}{10,000 \quad \text{(Given in question)}}$$

$$= \text{Rs. } 10.$$

ABSORPTION COSTING

First, one has to understand the meaning of absorption costing in order to learn the intricacies involved in the marginal-costing system. Under absorption costing, also known as conventional costing, both fixed and variable costs are charged to product costs. According to CIMA, “Absorption costing is a principle whereby fixed as well as variable costs are allotted to cost units. Under this system, cost per unit includes fixed expenses in addition to variable costs”. As all costs (variable and fixed) are identified to production, this system is also referred to as “product costing.”

Salient Features of "Absorption Costing"

(i) Fixed as well as variable costs are allotted (charged) to cost units and total overheads are absorbed according to the activity level.

(ii) Absorption costing aims at linking all costs (variable and fixed) to production.

(iii) Absorption costing allocates costs to the finished products and inventories.

(iv) For variable costs, the proportionate allocation for the inventories passing through various stages of production (process) may be accurately made.

(v) But for fixed costs, the allocation of costs, that is, transfer of fixed costs from one period to another, cannot be accurately made.

(vi) Administration, selling and distribution expenses are treated as period costs and are not allotted (charged) to cost units.

(vii) Under absorption costing, not only fixed overhead but also direct material, direct labour, direct expenses and variable factory overhead are treated as the product cost.

(viii) Absorption costing may also be designed as the job order or process cost for which the actual or standard costs are utilized.

(ix) Any changes in the volume of stock carried from one period to another will affect the profit earned.

(x) Correct and proper apportionment of overheads cannot be possible which results in the distortion of product costs.

(xi) All fixed costs are not charged to the profit and loss account (P&L A/c) of the period in which they are incurred. Real problem lies in the allocation of fixed costs.

(xii) Under absorption costing, the costs are not segregated into variable and fixed categories.

MARGINAL COSTING

Marginal costing is a unique technique of costing, in which only variable costs are accumulated and the cost per unit is ascertained only on the basis of variable costs. For ascertaining the value of inventories, prime costs and variable overheads are taken into account. Generally, fixed costs are not controllable as they tend to vary with time rather than with level or the type of output. Hence, fixed costs are not taken into account under marginal costing.

Marginal costing is defined as, “the accounting system in which variable costs are charged to cost units and fixed costs of the period are written-off in full against the aggregate contribution. Its special value is in decision-making”.

CIMA defines marginal costing as, “The principle whereby marginal costs of cost units are ascertained.

Only variable costs are charged to cost units, the fixed cost attributable to a relevant period being written off in full against the contribution for that period”. Marginal costing is based on the assumption that all costs can be segregated into two parts, namely, variable and fixed. Under marginal-costing technique, variable costs are assigned to products and matched with revenues (revenues from the related products and not the period). But periodic costs are matched with revenues in the “period” in which the costs are incurred.

Definition of marginal costing and main features of marginal costing—segregation of costs and its allocation explained.

Salient Features of Marginal Costing

Segregation of costs: Costs are separated into fixed and variable elements and semi-variables are also to be separated.

Variable cost as product cost: Only variable costs are considered as product costs.

Fixed cost as period cost: The fixed costs which are incurred during a period are excluded from the product cost.

They are treated as period costs and charged to the P&L A/c.

Valuation of stocks: Only the variable costs are taken into account for computing the value of stocks of work-in-progress (WIP) and finished products. They are valued at the marginal cost of production.

Prices: Prices are based on marginal costs and contribution margin. In the normal course, prices would cover costs in total.

Profit: Any change in stock carried from one period to another will not affect the profit earned. Profit would be consistent from period to period. Profi t is determined in terms of marginal contribution.

Combination of techniques: Marginal costing combines the techniques of cost recording and cost reporting.

Average variable cost: The unit cost of a product means the average variable cost of manufacturing the product.

ASCERTAINMENT OF INCOME (PROFIT) UNDER MARGINAL-COSTING AND ABSORPTION-COSTING TECHNIQUES

Marginal Costing

(a) Only factory-overhead costs which tend to vary with volume are charged to product cost in addition to prime cost.

(b) For inventory valuation, only direct materials, direct labour and variable factory overhead are included which are treated as product costs.

(c) An important point to be noted here is that fixed factory overhead is never included in the inventory.

(d) Fixed factory overhead is to be treated as a period cost and charged against the revenue when incurred.

Absorption Costing

(a) All manufacturing costs both fixed as well as variable costs are charged to cost units (product costs).

(b) All fixed expenses, especially, fixed production overheads are included in addition to the variable cost to ascertain the cost per unit.

(c) Profit is determined after charging all costs—both fixed and variable costs.

The main aspect under marginal-costing technique in income determination is that the profit is ascertained by charging fixed-expense costs to "contributions". As already described, contribution is the difference between the selling price and the marginal cost. Fixed costs have to be written off against contribution during the period when occurred.

Contribution = Selling price – Variable cost (Marginal cost)

Under marginal-costing technique,

Profit = Contribution – Fixed costs

If profit and fixed costs are known:

Then the equation may be transformed as:

Fixed costs + Profit = Contribution.

From this, the basic marginal equation is obtained as:

Sales – Marginal costs = Contribution.

where Contribution = Fixed costs + Profit.

Substituting this in the above equation, we get

Sales – Marginal costs = Fixed costs +Profit

(or) Sales = Marginal costs + Fixed costs + Profit

Distinction Between Absorption Costing and Marginal Costing

Having studied the salient features and techniques of marginal costing and absorption costing; now one can distinguish absorption costing from marginal costing. The distinction between the two methods may be presented in tabular form as follows:

Basis of Distinction	*Absorption Costing*	*Marginal Costing*
1. Segregation of costs.	Under absorption costing, costs are never classified into fixed and variable.	Costs must be classified into fixed and variable under this technique.
2. Treatment of fixed-production overheads.	Fixed-production overheads are included in the cost per unit.	Fixed-production overheads are not included in the calculation of cost per units.
3. Valuation of stocks.	Stocks are valued at total cost (variable + fixed).	Stocks are valued only at variable costs.
4. Absorption of certain costs.	Variable portion of administration, selling, distribution research and development costs will be absorbed in this technique.	Variable portion of administration, selling, distribution research and development costs are treated as capable of being absorbed by production.
5. Ascertainment of profit.	Profit is ascertained by computing the difference between the sales and costs of goods sold.	Profit is ascertained by computing the contribution and then deducting the total fixed expenses, where contribution = sales – variable cost.
6. Change in inventories and their effect on profit:		
(a) Increase in inventory	(a) If inventories increase, this method will show more profit.	a) If inventories increase, this method will reveal lesser profit than absorption costing.
(b) Decrease in inventory	(b) If inventories decrease, less profits will be shown under this method.	b) If inventories decrease, this method will show more profit than absorption costing.
7. Arbitrary apportionment of fixed costs and its effect.	Fixed costs are apportioned arbitrarily. Due to this, under- or overabsorption of overheads will result. Adjustments for recovery of such under- or overabsorption have to be made.	No such arbitrary apportionment of fixed costs arises under this technique. As such there is no resulting of under- or overabsorption of overheads and the question of adjustments for recovery does not arise here.

The features described above may be summarized as follows:

How profit will be affected under different situations? Reasons for such effect are explained in the following table:

Situation	*Effect Upon Profit Under Marginal & Absorption Costing*	*Reasons for the Effect*
1. When production (output) is equal to sales.	Profit under marginal costing and absorption costing will be the same.	There is no opening or closing stock. The total fixed costs incurred during the period are charged against the income of the period.
2. When sales exceed production.	Profit under absorption costing is lower than that shown in the marginal costing.	Closing stock decreases. Under absorption costing, the fixed costs charged against profit exceed the amount incurred during the year. This is due to the fact that fixed costs deferred previously in stock are charged against the income in the period in which goods are sold.
3. When production exceeds sales.	Profit under absorption costing is higher than that shown in the marginal costing.	Closing stock increases. Under absorption costing, the total fixed costs charged against income are lower than the amount incurred. This is because a portion of the fixed costs is deferred to future by including in the closing stock.

Situation	*Effect Upon Profit Under Marginal & Absorption Costing*	*Reasons for the Effect*
4. When sales volume remains constant the production fluctuates.	Profit under marginal costing remains constant. But under absorption costing, the profit will fluctuate.	Changes in the level of inventory will not affect profit under the marginal costing.
5. When the output volume is constant the volume of sales fluctuates.	The profit figure may not be the same but its movement will be in the same direction and there will not be any advance effect.	Profit is directly proportional to sales under these methods.

Summay :

Absorption Costing: A principle by which the fixed as well as the variable costs are charged to cost units and the total overheads are absorbed according to the activity level.

Limitations of Absorption Costing: (a) the changes in volume of stock will affect the profit; (b) the arbitrary apportionment of overheads will distort the production costs;

(c) all costs are not charged to P&L A/c of the period in which they are incurred; (d) fails to provide basis for decisions; and (e) costs are not segregated into fixed and variable.

Marginal Costing: The principle whereby the marginal costs of cost units are ascertained. Only variable costs are charged to cost units, the fixed cost attributable to a relevant period being written off in full against the contribution for that period.

Contribution represents the excess of sales price over the marginal costs of such sales.

Differences Between Absorption Costing and Marginal Costing: Differences exist in (i) charging cost to products; (ii) methods of approach; (iii) stock valuation; (iv) treatment of changes in volume of stock over periods; and (v) net-operating profit.

Special Features of Marginal Costing: (a) Segregation of costs into fixed and variable; (b) only variable costs—as product costs; (c) fixed costs to be treated as a period cost; (d) stocks are valued at marginal cost (e) emphasis is on the contribution margin; and (f) pricing at a marginal cost.

Advantages of Marginal Costing: (1) fixed costs are treated as period cost; (2) product costs approximate differential costs; (3) eliminates fluctuations in profit; (4) contribution is shown in books of accounts; and (5) a better control over fixed costs exists.

Break-Even and Cost–Volume–Profit Analysis

The determination of profitability is an essential part of an accounting process. A careful analysis of the behaviour of costs and profits as a function of the expected volume of sales is very vital to make important managerial decisions. As these factors—cost, volume and profit (CVP)—are interrelated, one's behaviour with respect to the other two factors has to be analysed in detail in determining the profitability of a business organization. CVP analysis is an effective tool of profit planning. In this lesson, the following are analysed with the technique of CVP analysis:

(a) Behaviour of costs with respect to volume.

(b) Volume (production or sales) at the level where the break-even occurs.

(c) Sensitively of profits to variation in output.

(d) Determination of profit for the desired sales volume.

(e) Determination of production and sales for the predetermined profit level.

FEATURES AND FORMULAE FOR PROFIT–VOLUME RATIO

One way of studying the relationship among costs, revenue and volumes is the profit-to-volume ratio. Profit– volume ratio establishes a relationship between the contribution and the volume of sales (or sales value). This ratio is also known as marginal-income ratio, contribution to sales ratio and variable-profit ratio or P/ V ratio.

The formulae for P/V ratio are:

$$\frac{P}{V} \text{ ratio} = \frac{\text{Marginal contribution}}{\text{Sales}}$$

or $$= \frac{\text{Sales value} - \text{variable cost}}{\text{Sales value}}$$

or $$= \frac{C}{S} \text{ or } \frac{S - V}{S}$$

or $$= 1 - \frac{\text{Variable cost}}{\text{Sales}}$$

or $$= \frac{\text{Fixed cost} + \text{Profit}}{\text{Sales value}}$$

or $$= \frac{\text{Changes in contribution}}{\text{Changes in sales}}$$

or $$= \frac{\text{Changes in profits}}{\text{Changes in sales}}$$

It is the rate at which the profit increases with the increase in volume. Any increase in contribution will mean an increase in the profit because fixed costs are assumed to remain constant overall sales volumes. The P/ V ratio will remain constant at different levels of production because variable costs as a proportion to sales remain constant.

Ways to Increase P/ V Ratio

P/ V ratio is useful in product analysis. A comparison of P/ V ratios for different products will reveal the most profitable product. Higher the P/ V ratio, more will be the profit, and lower the ratio, lesser will be the profit. The management can try to increase the value of P/ V ratio by:

(a) increasing the selling price per unit.

(b) reducing the direct and variable costs.

(c) switching over to products which show higher P/ V ratio.

Important Notes

1. If only “contribution per unit” and “P/ V ratios” are the available results, P/ V ratios should be considered to make decisions.

2. If “contribution per unit”, P/ V ratios, contribution per limiting factor are all available, it is better to make decisions on “contribution per limiting factor”.

3. However, an entire picture of the factory can be better understood, if analysis is carried out by taking all the three factors.

The cost–volume–profit (CVP) analysis assists the management of any business entity in determining the relationship of costs and revenues to profit. CVP analysis aims at determining the effect that a change in volume, cost price and product mix will have no profits. This analysis is based on the assumption that the volume of production drives cost and revenue. We have to analyse the factors involved in this analysis, namely, cost of manufacture (C), volume of sales effected (V) and profit or revenue (P) earned. All these factors are interdependent. Generally, profits are affected to a great extent by the interplay of costs and volume. Of these, the cost factor is considered to be the major criterion in the CVP analysis as determining how costs change with output is a difficult task. Further, costs are divided into fixed and variable costs. Fixed costs remain constant. They do not change with production (volume).

As such the amount per unit declines as the output increases. Because of this, we can say that fixed costs have a very little relationship with the volume of production. But the variable costs are directly associated with the level of activity. Variable costs may increase or decrease according to the increase or decrease of the level activity. Because of this, the amount per unit remains the same. The other factor, volume is generally expressed in terms of percentage of maximum sales or value of sales or unit of sales, and production capacity is expressed generally in terms of percentage of maximum production, production in revenue, physical terms, direct labour hours and machine hours.

The CVP analysis tries to project a picture of profit at different levels of activity. To put in a nutshell, CVP analysis aims to determine the behaviour of profits in relation to output and sales.

Definition of CVP Analysis

This may be defined as, “The study of the effects on future profits of changes in fixed cost, variable cost, quantity and mix”.

The analysis of CVP requires an interaction of many factors, the important being (i) the volume of sales, (ii) the selling price, (iii) the product mix of sales and (iv) variable costs per unit.

Analysis of CVP is explained by way of illustrations, after explaining the technique “break-even analysis”.

OBJECTIVES (UTILITY) OF CVP ANALYSIS

The objectives of CVP are detailed as follows:

Determination of optimum selling price: Pricing plays an important part in the activity of a business. CVP analysis assists in framing the pricing policies of products with an aim on the profit.

Profit planning: In order to estimate the profit or loss at different levels of activity, CVP analysis is essential.

Exercise cost control: CVP analysis assists in the evaluation of profit, cost incurred, and the like which facilitates the task of cost control.

Forecasting profit: To forecast precisely, it has become necessary to study the relationship between profits and costs on one side and volume on the other.

Decided alternative course of action: To make decisions accurately, CVP analysis helps to decide on the alternative courses of action, i.e., to make or buy, to continue or shut down, etc.

Planning for cash requirements: CVP analysis assists in planning for cash requirements at a given volume of output.

New product decisions: CVP analysis is very helpful in deciding to launch a new product (nature, volume of output, price, and volume of sale).

Determination of overheads: CVP analysis helps in determining the amount of overhead cost to be charged at various levels of activity (operation) because overhead rates are generally predetermined to a selected volume of production.

Setting up flexible budgets: CVP analysis is helpful in setting up flexible budgets which indicate costs at different levels of activity.

BREAK-EVEN ANALYSIS

Break-even analysis is a technique to formulate profit planning. As already explained, costs are divided into fixed costs and variable costs. Changes occur in such costs at different levels of production. The effect on profit due to these variations has to be studied for a proper profit planning. Break-even analysis is an analytical technique for studying the relationship between costs and revenues. It may be defined as, “a technique which shows the profitability or otherwise of an undertaking at various levels of activity and as a result indicates the point at which sales will equal total costs” (at which neither profit nor loss will occur). The break-even analysis depicts the following

information at different levels of production (activities).

Features of Break-even Analysis are as follows:

(a) Variable costs, fixed costs and total costs.

(b) Sales value.

(c) Break-even point, i.e., the point at which the total costs just equal (break-even) with sales. This is the point at which neither profit nor loss will occur.

(d) Profit or loss.

Break-even analysis is more or less similar to CVP analysis because break-even analysis also tries to depict the relationship between the factor cost of production, volume of production and profit (value of sales). It is useful to take important managerial decisions.

Assumptions Underlying Break-Even Analysis

Following are some of the assumptions underlying break-even analysis.

Cost variability concept: The concept of cost variability is valid. Costs can be classified into fixed and variable costs.

Fixed costs are constant: The fixed costs will remain constant. There are certain factors for which the costs may not change, whatever may be the level of activity.

Segregation of semi-variable costs: Semi-variable costs can be segregated into fixed and variable.

Constant selling price: The selling price does not change as the volume of sales changes.

No change in product: In case there is only one product, then there will not be any change in that product; if there is more than one product, then that sales mix will remain constant.

Management policy: The basic managerial policies will remain unchanged.

Short-term price level: In the short run, the general price level will remain stable.

Constant product mix: Like sales mix, the product mix will also remain unchanged.

Operating efficiency: Operating efficiency of the fi rm will neither increase nor decrease.

Synchronization between production and sales: The number of units of sales will coincide with the number of units of production so that inventory may remain constant or NIL (i.e., no opening and closing stock).

Break-Even Point

The terminology of CIMA defines the break-even point (BEP) as, “the level of activity at which there is neither profit nor loss”. It may be said otherwise as: BEP denotes the activity level at which the total costs equal the total revenue. If the level of activity is increased beyond this point, profit will accrue. If the level of activity is decreased below this point, loss will arise. BEP may be expressed in terms of units or value. If it is expressed in terms of units, it is called as break-even volume. If it is expressed in terms of value, then it is known as break-even sales value.

Definition and Formula to Determine BEP

(i) Break-even volume is calculated as: $\frac{\text{Fixed cost}}{\text{Contribution/unit}}$

(ii) Break-even sales value is calculated as: $\frac{\text{Sales value} \times \text{Fixed cost}}{\text{Sales value} - \text{Variable cost}}$

Methods for Determining BEPs

The following methods can be adopted to determine the BEP:

(a) Graphic Presentation:

Under this category, there are too methods, namely:

(i) Break-even chart and

(ii) Profit—volume charts.

(b) Algebraic Methods:

Under this category also, there are two methods:

(i) Contribution-margin approach and

(ii) Equation technique.

(i) Contribution-margin approach:

(a) BEP (in units) $= \frac{\text{Total fixed costs}}{\text{(Selling price per unit – marginal cost per unit)}}$

or

(b) BEP (in units) $= \frac{\text{Total fixed costs}}{\text{Contribution per unit}}$

or

(c) BEP (in value, Rs.) $= \frac{\text{Fixed costs} \times \text{Sales}}{\text{Sales} - \text{Marginal cost}}$

or

(d) BEP (in Rs.) $= \frac{\text{Fixed cost}}{\frac{\text{P}}{\text{V}} \text{ ratio}}$

or

(e) BEP (in Rs.) = BEP (units) × selling price per unit

NOTE: Depending on the cost data available, a suitable formula (one among the five different formulae mentioned above) should be selected and the figures should be substituted in the formula to determine the BEP.

(ii) Equation Technique:

Derivation of the equation may be explained as follows:

This technique is based on the income equation which is as follows:

Sales – Total costs = Net profit.

As the total costs can be segregated into fixed and variable, the equation may be rewritten as:

Sales – Fixed costs – Variable costs = Net profit

or

Sales = Fixed costs + Variable costs = Net profit

This can be modified as:

$$SP\ (S) = FC + VC\ (S) + P$$

Where:

SP = Selling price per unit.

S = Number of units required to be sold to break-even.

FC = Total fixed costs.

VC = Variable cost per unit.

P = Net profit (zero).

Substituting the value of P, we get:

$$SP\ (S) = FC + VC\ (S) + (\text{Zero})\ 0.$$

$$SP\ (S) = FC + VC\ (S).$$

$$SP\ (S) - VC\ (S) = FC.$$

$$S\ (SP - VC) = FC.$$

$$S = \frac{FC}{SP - VC}.$$

The level of sales required to earn a particular level of profit can be determined by using the formula:

$$\text{Required sales (to earn a particular level of profit)} = \frac{\text{Fixed cost} + \text{Designed profit}}{\frac{P}{V}\ \text{ratio}}$$

CONCEPT OF SOME IMPORTANT TERMS

Cost BEP

• In case there are two alternatives and the costs under two alternatives are equal, then such condition is referred to as “cost BEP”. It is also called as “cost indifference point”.

• Its use is to decide which alternative is better to undertake the further level of activity.

• The formula for computing cost BEP is:

$$\text{Cost BEP (in units)} = \frac{\text{Increase in fixed cost}}{\text{Saving in variable cost/unit}}$$

Cash BEP

Cash BEP refers to the level of output (or sale) at which there will be no cash profit and no cash loss to the business entities. It refers to the level of activity where the cash inflow will equal the cash requirements to discharge (immediate) the cash liabilities.

To compute cash BEP, the formula is:

$$\text{Cash BEP (output)} = \frac{\text{Cash fixed costs}}{\text{Cash contribution/unit}}$$

The fixed costs have to be classified into two categories as: (i) Fixed costs that do not require immediate cash requirements, e.g., deferred expenses and depreciation and (ii) Fixed costs that require immediate cash requirements, e.g. wages and rent. This has to be taken into account.

Composite BEP

A business entity may have different manufacturing establishments. Each establishment will have its own (or separate independent) production capacity and fixed costs, but will produce the same product. At the same time, the entity as a whole is a (one) unit having different establishments under the same management.

When more than one product is involved, BEP cannot be stated in units. This is because the sales volume of different products is expressed in different units of measurement. Some products may not be of a comparable nature

and the contribution per unit may also differ. Hence, P/ V ratio has to be used to compute BEPs in terms of sales value (i.e., in rupee value). As all the products may not have the same P/ V ratio, we have to assume a constant sale mix at all levels of sales. Hence, the combined fixed costs have to be met by the combined BEP sales.

There are two approaches to determine BEP under such circumstances:

1. Constant (product or) sales mix

2. Variable (product or) sales mix

Constant Sales-Mix Approach

Under this approach,

(i) The ratio in which the products of various establishments are mixed is constant.

(ii) Such mix must be maintained at BEP sales.

Variable Sales-Mix Approach

Step 1 → Under this approach, the first contribution per unit is determined.

Contribution per unit for A = Rs. 25 for B is Rs. 20.

Step 2 → Among the two; choose the one whose contribution is higher. Here, contribution for A is higher. Hence, it should be used first and that too with its full capacity. That means, 20,000 units should be produced before the production of B.

Step 3 → So, the contribution will be 20,000 (units) × Rs. 25 (contribution) = Rs. 5,00,000.

Step 4 → Total fixed expenses for both the factories (Rs. 3,00,000 + Rs. 2,00,000) = Rs. 5,00,000.

MARGIN OF SAFETY

Definition and Computation

Margin of safety is excess of sales over and above BEP. It may also be said that margin of safety is the difference between the actual sales and the sales at BEP. In the break-even chart, it is the distance between the BEP and the present sales of output. The terminology of CIMA defines margin of safety ratio as,

$$\frac{\text{Forecast turnover} - \text{Break-even turnover}}{\text{Forecast turnover}} \times 100$$

Sales beyond break-even volume will result in profits. Such sales represent margin of safety.

Margin of safety may be expressed in sales volume or value or in percentage.

Margin of safety is an indicator of the strength of the business. The higher the margin of safety, the better it is for the business. A high margin indicates high profit, whereas a low margin of safety will indicate a low profit. This is due to high fixed costs. To set right the low margin of safety, the following measures may be undertaken by the management:

(i) Fixed costs may be reduced.

(ii) Variable costs too may be lowered to improve contribution.

(iii) Volume of sales can be increased.

(iv) Selling prices may be increased but it should not affect the market demand.

(v) Product mix may be judiciously changed to maximize the contribution.

ANGLE OF INCIDENCE

Meaning and Significance

This is the angle between sales line and total cost line. This angle is formed by the intersection of the total cost line and the sales line (at the BEP). This angle is an indicator of profit-earning capacity over BEP. Large angle indicates the earning of high margin of profit. Small angle indicates a low margin of profit which, in turn, suggests that variable costs constitute a major chunk of cost of sales.

In general, a small angle of incidence indicates that firms are highly stable—with narrow profit margin, low BEP, high margin of safety, low fixed cost and high variable cost, whereas

a large angle of incidence indicates that firms are highly risky—with high BEP, high fixed cost, low variable cost and low margin of safety.

If angle of incidence and margin of safety are considered together, the results will be more profitable. Impact of costs and selling price on profit and loss, BEP and margin of safety.

IMPACT OF VARIABLE COST, FIXED COST AND SELLING PRICE ON CONTRIBUTION, P/ V RATIO, BEP AND MARGIN OF SAFETY

Particulars Increase/ Decrease	*Impact On*			
	Contribution	*P/V Ratio*	*BEP*	*Margin of Safety*
Increase in variable cost	Reduce contribution	Decrease P/V ratio	Increase	Decrease
Decrease in variable cost	Increase	Increase P/V ratio	Decrease	Increase
Increase in fixed cost	NIL	No effect on P/V ratio	Increase BEP	Reduce MS
Decrease in fixed cost	NIL	No effect on P/V ratio	Reduce BEP	Increase MS
Increase in selling price	Increase	Increase	Reduce BEP	Increase MS
Decrease in selling price	Reduce	Decrease	Increase BEP	Decrease MS

USES OF CVP ANALYSIS

1. Forecast: CVP analysis assists in forecasting costs and profits on account of change in volume – in both production and sales.

2. Determination of relative prof t: This analysis extends a helping hand in the determination of profitability of each product.

3. Inter-firm comparison: By applying the CVP-analysis technique, interfirm comparison of profitability among firms can be easily made to assess the prevailing conditions in the market.

4. Studying the effect of change in volume: Any change in the volume of sales will have a deterrent impact on

other important associated factors—cost and profi t. CVP analysis assists in learning such impacts.

5. Segregation of costs: As costs can be segregated into fi xed and variable, CVP analysis helps to a great extent

in this task. As variable costs can affect to a great extent with respect to contribution, contribution to sales ratio P/V ratio , and, in turn, their impact on other related factors, such costs should be identified in order to forecast better planning.

6. Determination of cash requirements: CVP analysis assists in determining the cash requirements at a desired volume of production, at different levels of activity.

7. Making new product decisions: When the management is confronted with the problem whether to introduce new product or how effectively the existing product can be handled to maximize the profits. Under such circumstances, this analysis will give a proper solution.

8. Cost control: To exercise an effective cost control, this analysis will be of much help.

9. Shut-down decisions: To decide whether to shut down any unit or continue its operations, CVP analysis acts as an effective tool in the hands of management.

10. Modernization programme: CVP analysis helps in analysing a modernization or automation programme of an enterprise.

Decision making involving alternative choices

Relevant Cost

Relevant costs are those expected future costs which are essential to a decision. The two key aspects of these costs are as follows:

They must be expected future cost.

They must be different among the alternative course of action.

Opportunity Cost

Opportunity cost of the value of opportunity forgone is taken into consideration when alternatives are compared.

It is helpful to the management in making profitability calculation when one or more of the inputs required by one or more of the alternative course of action is already available.

Optimizing the Product Mix

“Contribution” is the main criteria to decide the profitability of any business concern. The product which gives the highest contribution is generally considered to be the most profitable one. In order to maximize the profit, the resources have to be mobilized towards the product which gives the highest contribution. In business, these resources include working capital, available hours, machine capacity, raw materials, production capacity and sales potential.

The product mix which gives the maximum contribution is selected and produced in maximum possible quantities.

A business enterprise which manufactures more than one product, must decide in what proportion would these products be produced or sold. The technique of marginal costing helps the management in determining the most profitable product mix. To determine the

best product mix, the contribution under different mixes will have to be ascertained. The mix which gives the highest contribution will be selected for production.

Problems of Limiting Factor or Key Factor

Concept of Limiting Factors and Method of Computing Contribution Related to Limiting Factors

As discussed above, we have come to understand that the product which gives the greatest contribution will be the most profitable one. But in practice, there are several factors which limits the production and or sales even if the products give a high contribution. These factors, usually termed as limiting factors or key factors, limit the volume of output at a particular period. These constraints are also called as scarce factors, limiting factors, principal budget factors or governing factors. In such a case, if there is any limiting factor, care should be taken before arriving at a decision. Contribution per unit of key factor has to be computed, and the product which gives the greatest contribution per unit of key factor is considered highly profitable and such product is taken for production to maximize the profit. The list of limiting factors is vast and the most important limiting factors are: sale labour, raw material, plant capacity and availability of capital.

Make or Buy Decision

Quite often the management of a manufacturing company will face the problem whether a component or a product should be purchased from an outside source (suppliers) or manufactured by the company itself. Marginal-cost analysis renders a helping hand to arrive at a proper and suitable solution in solving such a problem. Besides this, we have to consider the following two situations.

Situation 1: The company may have unused capacity which may be utilized for making component parts or products or needed similar items. In such situation, the marginal cost of manufacturing the required component parts have to be compared with the prices quoted by outside sources (suppliers). If the purchase price is lower than the marginal cost, the wise decision would be to buy them from outside. If marginal costs are lower than the purchase price, the decision to manufacture the components in the fi rm itself will be wise. For this, the fixed costs are to be excluded on the assumption as they are incurred already and the manufacture would involve only the variable cost.

At this juncture, it is important to take into consideration the limiting factor, if it exists.

Situation 2: When there is no unutilized capacity, the circumstances drive to manufacture the components in the company itself. The problem of putting aside the other work and the loss of contribution from such displaced work will have to be taken into account. If the purchase price is higher than the marginal cost of production + traceable fixed costs + loss of

contribution (as mentioned above), then the decision to manufacture them will result in an increased profit.

Under the following circumstances, it is better to make instead of buy the components from the outside vendors, even if the marginal contribution is less or zero:

(i) The design or process may be a trade secret which the management may not like to pass on to external people.

(ii) To ensure a normal and reliable supply of the components, and to facilitate a smooth normal production function, it is always better to make the components in the factory itself.

(iii) Making the components in the factory itself would ensure a better control on the deliveries of stock.

(iv) Relying on outsource purchase depends mainly on one more factor—transport, which may often result in delay in deliveries.

(v) It depends on the management policy also.

But, under the following circumstances, buying a product or components or materials from outside sources is preferred:

(i) When the companies lack specialized techniques to manufacture them.

(ii) When proper men and equipment are not available

(iii) When the market trends for the components which are to be manufactured are seasonal or cyclical

(iv) When the return on the additional capital employed is not favourable.

The following points are the relevant consideration involved in taking make or buy decision.

Labour relation.

Cost of making and purchasing.

Quality of goods supplied by supplier.

Availability of labour to make the product.

Possible use of related capacity and facility as a result of buying instead of making.

Cost of labour redundancies.

Whether there is possibility to expand the existing capacity or extra capacity.

Profit Planning

Marginal-costing technique is also used in planning the profit level of the business. To put in other words, profit planning is the planning of future operation (level of activity planning) to attain a maximum profit or to maintain a desired level of profit. Following are some of the ways to improve the profit level of the business:

(i) By increasing volume.

(ii) By increasing selling price

(iii) By decreasing variable costs.

(iv) By decreasing fixed costs.

Marginal costing focuses mainly on the contribution margin. Consequently, in this chapter problems are solved by applying marginal-costing technique only. The contribution-ratio technique (ratio of marginal contribution to sales) also plays a vital role in determining the profit performance of a business. The techniques of applying ratios especially P-V ratio is discussed in the next chapter captioned, "Break-even and Cost–volume–profit analysis". Now, the contribution concept is applied in making the decision to ensure a profit level.

Change in Selling Price

The management often faces one important problem: the effect on profit of a change in the sales price. Generally, to attract a wider market, the price reduction is contemplated. In such cases, it would be essential to determine the effect of such proposals. The marginal-costing technique will be helpful in ascertaining the effect of such a proposal.

Production and Market-Expansion Decisions

Maximum use or absorption of fixed costs will be the ultimate aim of any business. The installed capacity of an entity can be utilized maximum by planning the production as well as the market expansion. Such decisions may be guided by the marginal-costing technique. The amount of additional contribution to be earned by extra production and increase in volume of sales (after deducting fixed costs) will determine whether to venture it or not. If contribution is higher, such expansion decisions are more profitable.

Shut Down or Continue

If the products are making a contribution towards fixed expenses or in other words if selling price is above the marginal cost. It is preferable to continue because the losses are minimised.

By suspending the manufacture certain fixed expenses can be avoided and certain extra fixed expenses may be incurred depending upon the nature of the industry.

Decision is based on as to whether the contribution is more than the difference between the fixed expenses incurred in normal operation and the fixed expenses incurred when the plant is shut down.

Shut down point can be calculated by using the following formula:

Shut down point = (Total Fixed Cost – Shut down cost) ÷ Contribution per unit

Export or local sales

When the firm has the surplus capacity it may think of utilising the same to meet export orders at price lower than that prevailing in the local market.

The decision is only made when the local sale is earning a profit i.e. where fixed expenses have already been recovered by the local sales. In such cases if the export price is more than the marginal cost, it is preferable to enter the export market. Any reduction in the price prevailing the local market to fulfill surplus capacity may have address effect on the normal local sales.

Expand or Contract

Whenever a decision is taken as to whether the capacity is to be expanded or not, following points should be kept in mind.

Additional fixed expenses to be incurred.

Possible decrease in selling price due to increase in production.

Whether the demand is sufficient to absorb the increased production.

Based on the above points the cost schedule will be worked out. While deciding about the contraction of business, the segregation in fixed expenses and the marginal contribution cost will have to be taken in to amount.

Decisions involving dropping or adding a product line.

Since the objective of any business organization is to maximize its profits, the firm can consider the economies of dropping the unprofitable products, and adding a more remunerative product(s).

In such cases, the firm may have two alternatives as under:

(a) To drop the unprofitable product and to leave the capacity unutilized.

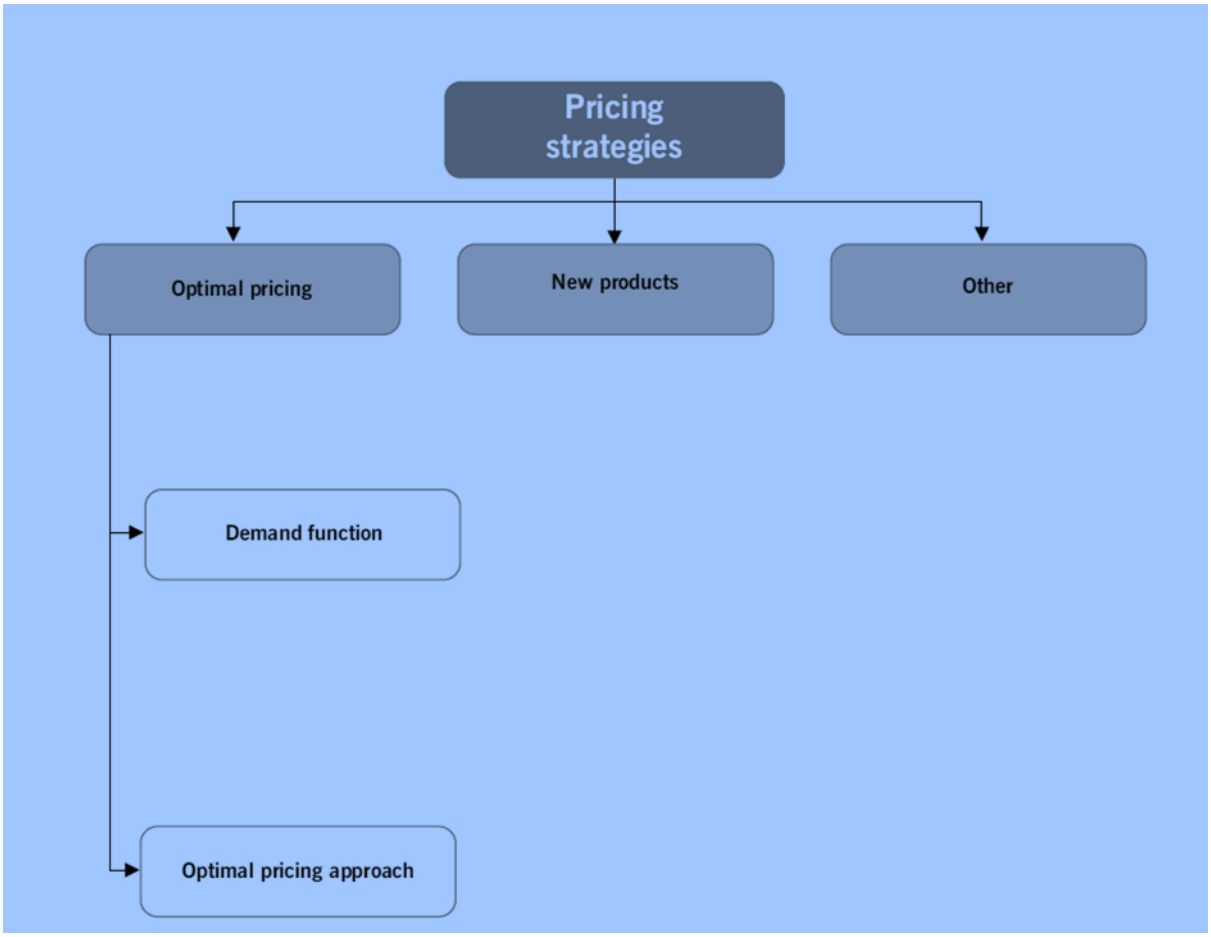
(b) To drop the unprofitable product and to utilize the capacity for the manufacture of a more remunerative product.

For this purpose, the contribution approach is adopted, taking the following factors into account:

Contribution from unprofitable product (i.e. Sale Revenue Less Variable Costs)

Specific fixed costs of the unprofitable product, which can now be avoided or reduced.

Contribution from the other profitable product, which is proposed to be produced with the balance capacity.



Issue 1: the relationship between price and demand

MCQs

What distinguishes absorption costing from marginal costing?

(a) Product costs include both prime cost and production overhead

(b) Product costs include both production and non-production costs

(c) Stock valuation includes a share of all production costs

(d) Stock valuation includes a share of all costs

Which of the following factors are not qualitative factors in a make or buy decision?

a. Doubt as to the ability of the subcontractor to meet delivery dates

b. Doubt as to ability of the subcontractor to maintain quality

c. The case with which improvements can be made to the product

d. The effect of redundancy on labour relations

CVP analysis requires costs to be categorized as

(a) fixed or variable

(b) direct or indirect

(c) product or period

(d) standard or actual

The Marginal Cost Statement

(a) shows the gross profit

(b) is sent to the shareholders

(c) shows classification of costs as direct and indirect

(d) can be used to predict future profits at different levels of activity

Contribution equals :

(a) Sales minus cost of sales

(b) Sales minus cost of production

(c) Sales minus variable costs

(d) Sales minus fixed costs

In a shutdown decision, one has to consider:

a. Contribution

b. Identifiable fixed cost, if any

c. Impact of shutdown on other products, if any

d. All of the above

Which of the following costs is not deducted from sales revenue in computation of contribution?

(a) Direct materials

(b) Direct labour

(c) Fixed factory overheads

(d) Variable selling overheads

Angle of incidence defines:

a. Systematic risk in CAPM model

b. Post BEP relationship between total cost and total revenue

c. Incidental factors in investments

d. Marginal cost of production

P/V ratio is equal to

(a) Profit/volume

(b) Contribution/sales

(c) Profit/contribution

(d) Profit/sales

Profit – volume ratio is improved by reducing

(a) Variable cost

(b) Fixed cost

(c) Both of them

(d) None of them

The selling price per unit less the variable cost per unit is the :

(a) Fixed cost per unit

(b) Gross profit per unit

(c) Operating profit per unit

(d) Contribution per unit

At the break-even point, which equation will be true.

(a) Variable cost – fixed cost = contribution

(b) Sales = variable cost + fixed cost

(c) Sales – fixed cost = contribution

(d) Sales – contribution = variable cost

If contribution margin increases by Rs 2 per unit, then operating profits will

(a) also increase by Rs 2 per unit

(b) increase by less than Rs 2 per unit

(c) decrease by Rs 2 per unit

(d) cannot say

The break-even points in units is equal to

(a) Fixed cost/PV ratio

(b) Fixed cost x sales/total contribution

(c) Fixed cost/contribution per unit

(d) Fixed cost/total contribution

When fixed cost increases, the break-even point

(a) Increases

(b) Decreases

(c) No effect

(d) Can't say

Under marginal costing:

a. All costs are classified into two groups – variable and fixed

b. Variable costs form part of the product cost and inventory valuation

c. Fixed costs are treated as period costs

d. All of the above

When variable cost decreases, the break-even point

(a) Increases

(b) Decreases

(c) No effect

(d) Can't say

When selling price decreases, the break-even point

(a) Increases

(b) Decreases

(c) No effect

(d) Can't say

When sales increases then break-even point

(a) Increases

(b) Decreases

(c) Remains constant

(d) None of these

Angie of incidence is_____.

A. the angle between the sales line and the total cost line.

B. the angle between the sales line and the y-axis.

C. the angle between the sales line and the x-axis.

D. the angle between the sales line and the total profit line.

Absorption costing differs from marginal costing is the_____.

A. fact that standard costs can be used with absorption costing but not with marginal costing .

B. amount of costs assigned to individual units of products.

C. kind of activities for which each can be used.

D. amount of fixed costs that will be incurred.

Which of the following can improve break-even point?

(a) Increase in variable cost

(b) Increase in fixed cost

(c) Increase in sale price

(d) Increase in sales volume

(e) Increase in production volume

Which of the following definitions describe marginal cost?

a. The variable cost of one unit of product or service

b. A principle whereby variable costs are charged to cost units and the fixed costs attributable to the relevant period are written-off in full against the contribution for that period

c. Costs appropriate to aiding the making of specific management decisions

d. The price at which material identical to that which is used up could be replaced on the date of usage

Which of the following describes the margin of safety?

(a) actual contribution margin achieved compared with that required to break-even

(b) actual sales compared with sales required to break-even

(c) actual versus budgeted net profit margin

(d) actual versus budgeted sales

Margin of safety is expressed as

(a) Profit / P/V ratio

(b) (Actual sales – sales at BEP) / Actual sales

(c) Actual sales – Sales at BEP

(d) All of the above

Under which of the following cases the margin of safety decreases?

(a) Reduction in fixed cost

(b) Increase in variable cost

(c) Increase in the level of production or selling price or both

(d) Change in the sales mix in order to increase the contribution

(e) Substitute the existing unprofitable product with the profitable ones

In the break-even chart, the margin of safety point lies

(a) To the left of break-even point"

(b) To the right of break-even point

(c) On break-even point

(d) Can't say

CVP analysis is most important for the determination of_____.

A. sales revenue necessary to equal fixed costs.

B. relationship between revenues and costs at various levels of operations.

C. variable revenues necessary to equal fixed costs .

D. volume of operations necessary to Break—even.

Fixed cost is equal to

(a) Break-even sales x Margin of safety

(b) Sales x Margin of safety

(c) Sales x Profit-volume ratio

(d) Profit-volume ratio x Break even sales

Contribution margin is also known as _____.

A. marginal income.

B. Gross profit.

C. net profit.

D. net loss.

Which of the following factors is to be multiplied with contribution margin ratio to calculate profit?

(a) Unit contribution margin

(b) Margin of safety

(c) Variable costs per unit

(d) Unit sales price

(e) Change in sales volume

An increase in variable costs_____.

A. increases p/v ratio.

B. increases the profit.

C. reduces contribution.

D. increase margin of safety.

In cost-volume-profit analysis, profit is equal to

(a) Sales Revenue x P/V ratio – Fixed Cost

(b) Sales units x contribution per unit – fixed costs

(c) Total contribution – Fixed cost

(d) All the above

Selling price per unit Rs. 10; Variable cost Rs. 8 per unit; Fixed cost Rs. 20,000; Break-even production in units_____.

A. 10,000.

B. 16,300.

C. 2,000.

D. 2,500.

The sales volume in value required to earn the target profit, the formula is

(a) Target profit / Contribution per unit

(b) (Fixed cost + Target profit) x P/V ratio

(c) (Fixed cost + Target profit) / Contribution on per unit

(d) (Fixed cost + Target profit) / PV ratio

There is a reduction in the selling price. This will, other factors remaining same –

(a) increase contribution margin

(b) reduce fixed costs

(c) increase variable costs

(d) reduce operating income

A large Margin of Safety indicates_____.

A. over production.

B. over capitalization.

C. the soundness of the business.

D. under capitalization.

Sales Rs. 25,000; Variable cost Rs. 8,000; Fixed cost Rs. 5,000; Break-even sales in value_____.

A. Rs. 7,936.

B. Rs. 7,353.

C. Rs. 8,333.

D. Rs. 9,090.

Cost-volume-profit analysis is used Primarily by management :

(a) as a planning tool

(b) for control purposes

(c) to prepare external financial statements

(d) for correct financial results

Which of the following is not an assumption underlying the accountant‘s break-even chart?

a. Fixed costs remain fixed throughout the range charted

b. Selling prices do not change

c. Variable costs fluctuate inversely with volume

d. Unit variable costs remain constant throughout the range charted

There is an increase in advertising expenses. This will, other factors remaining same –

(a) reduce operating income

(b) reduce contribution

(c) decrease selling price

(d) increase variable costs

Which of the following formula cannot be used for calculating the P/V ratio ?

(A) (Sales value minus variable cost) / Sales value

(B) (Fixed cost plus profit)/Sales value

(C) Change in profits/Change in sales

(D) Profit/Sales value

A company manufactures a single product for which cost and selling price data are as follows:

Selling price per unit - Rs. 12

Variable cost per unit - Rs. 8

Fixed cost for a period - Rs. 98,000

Budgeted sales for a period - 30,000 units

The margin of safety, expressed as a percentage of budgeted sales, is:

(a) 20%

b) 25%

(c) 73%

(d) 125%

The contribution to sales ratio of a company is 20% and profit is Rs 64,500. If the total sales of the company are Rs 7,80,000, the fixed cost is

(a) Rs 1,56,000

(b) Rs 1,21,500

(c) Rs 1,05,600

(d) Rs 91,500

(e) Rs 90,000

The total cost of manufacturing 3,600 units of Product X is Rs 81,000 which includes a variable cost per unit of Rs 15.00. If the company desires to produce 3,850 units, then the total cost would be

(a) Rs 86,625

(b) Rs 84,750

(c) Rs 57,750

(d) Rs 52,250

(e) Rs 50,700

For a given product, the sale of a company @ ₹ 200 per unit is ₹ 20,00,000. Variable cost is ₹ 12,00,000 and fixed cost is ₹ 6,00,000. The capacity of the factory is 15,000 units. Capacity utilization at break-even point level

(A) 40%

(B) 50%

(C) 60%

(D) 100%

Sales – Variable Cost = Contribution

20,00,0000 – 12,00,000 = 8,00,000

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{8,00,000}{20,00,000} \times 100 = 40\%$$

$$\text{BEP (in value)} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{6,00,000}{40\%} = 15,00,000$$

$$\text{BEP (in units)} = \frac{15,00,000}{200} = 7,500 \text{ units}$$

$$\text{Capacity utilization at break-even point} = \frac{7,500}{15,000} \times 100 = 50\%$$

Fixed cost Rs. 80,000; Variable cost Rs. 2 per unit; Selling price Rs. 10 per unit; turnover required for a profit target of Rs. 60,000.

A. Rs. 1,75,000.

B. Rs. 1,17,400.

C. Rs. 1.57,000.

D. Rs. 1,86,667.

For a given product, the selling price per unit is 15, the variable cost per and units sold during the period are 35,000. The margin of safety is

(A) ₹ 25,000

(B) ₹ 75,000

(C) ₹ 15,000

(D) ₹ 5,000

Particulars **No. of units**	**p.u.**	**Total** **35,000**
Sales	15	5,25,000
Less: Variable cost	(10)	(3,50,000)
Contribution	5	1,75,000
Less: Fixed cost		(1,50,000)
Profit		25,000

$$\text{P/V ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{1,75,000}{5,25,000} \times 100 = 33.3333\%$$

$$\text{MOS (in value)} = \frac{\text{Profit}}{\text{P/V ratio}} = \frac{25,000}{33.3333\%} = 75,000$$

When the volume is 3,000 units, the average cost is ₹ 4 per unit. When the volume is 4,000 units, the average cost is ₹ 3.50 per unit. The break-even point is 5,000 units.

What is the P/V ratio of the firm?

(A) 35%

(B) 37.5%

(C) 40%

(D) 32.5%

Total cost at 3,000 units = 3,000 × 4 12,000

Total cost at 4,000 units = 4,000 × 3.5 = 14,000

Variable cost per unit = $\frac{\text{Change in cost}}{\text{Change in units}} = \frac{2,000}{1,000}$ = 2 per unit

	3,000 units	4,000 units
Variable Cost	6,000	8,000
Fixed Cost *(Bal. Fig.)*	6,000	6,000
Total Cost	12,000	14,000

At the break-even point profit is NILL.

Particulars	Total
No. of units	5,000
Sales	16,000
Less: Variable cost	10,000
Contribution	6,000
Less: Fixed cost	(6,000)
Profit	Nil

P/V ratio = $\frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{6,000}{16,000} \times 100 = 37.5\%$

A company's break-even point is 6,000 units per annum. The selling price is Rs. 90 per unit and the variable cost is Rs. 40 per unit. What are the company's annual fixed costs?

(a) Rs. 120

(b) Rs. 2,40,000

(c) Rs. 3,00,000

(d) Rs. 5,40,000

Fixed cost is a cost:

(a) Which changes in total in proportion to changes in output

(b) Which is partly fixed and partly variable in relation to output

(c) Which do not change in total during a given period despise changes in output

(d) Which remains same for each unit of output

A product is sold at a price of ₹ 120 per unit and its variable cost is ₹ 80 per unit. The fixed expenses of the business are ₹ 8,000 per year. Break-even point is

(A) ₹ 24,000

(B) ₹ 120,000

(C) ₹ 116,000

(D) ₹ 28,000

Contribution per unit = 120 – 80 = 40

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{40}{120} \times 100 = 33.3333\%$$

$$\text{BEP (in value)} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{8{,}000}{33.3333\%} = 24{,}000$$

Answer:

(A) ₹ 24,000

Sales Rs. 25,000; Variable cost Rs. 15,000; Fixed cost Rs .4,000; P/V Ratio is_____.

A. 40% .

B. 80%

C. 15%

D. 30%.

Sales Rs. 50,000; Variable cost Rs. 30,000; Net profit Rs. 6,000; fixed cost is_____.

A. Rs. 10,000.

B. Rs. l4,000 .

C. Rs. 12,000.

D. Rs. 8,000.

The following information relates to a product:

Direct materials: 10 kg @ ₹ 0.50 per kg.

Direct labour: 1 hour 30 minutes @ ₹ 4 per hour

Variable overheads: 1 hour 30 minutes @ ₹ 1 per hour

Fixed overheads @ ₹ 2 per hour (based on a budgeted production volume of 90,0 direct labour hours for the year)

Selling price per unit: ₹ 17 The break-even point is

(A) ₹ 40,000 units

(B) ₹ 40,000

(C) ₹ 20,000 units

(D) ₹ 7,200 units

Total variable cost per unit = (10 × 0.50) + (1.5 × 4) + (1.5 × 1) = 12.5

Total fixed cost = 90,000 × 2 = 1,80,000

Sales	17
Less: Variable cost	(12.5)
Contribution	4.5

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{4.5}{17} \times 100 = 26.4706\%$$

$$\text{P/V Ratio} = \frac{\text{Fixed Cost}}{\text{Contribution p.u.}} = \frac{1,80,000}{4.5} = 40,000$$

Actual sales Rs .4,00,000; Break-even sales Rs. 2,50,000; Margin of Safety in percentage is_____.

A. 33.33%.

B. 66.67%

C. 37.5% .

D. 76.33%.

P/V Ratio 50%; Variable cost of the produce Rs. 25; Selling price is _____.

A. Rs. 50 .

B. Rs. 40.

C. Rs. 30 .

D. Rs. 55.

A company has an annual fixed cost of ₹ 1,68,000. In the year 2013-2014, sales amounted to ₹ 6,00,000 as compared to ₹ 4,50,000in the preceding year 2021-2022. The profit in the year 2013-2014 was ₹ 42,000 more than that in the year 2012-2013. The break-even sales of the company are

(A) 6,00,000

(B) 6,20,000

(C) 5,60,000

(D) 4,08,000

Let the profit of last year be 'x'.

So the profit of current year will be 'x + 42,000'

$$\text{P/V ratio} = \frac{\text{Change in profit}}{\text{Change in sales}} \times 100 = \frac{(x + 42{,}000) - x}{6{,}00{,}000 - 4{,}50{,}000} \times 100 = \frac{42{,}000}{1{,}50{,}000} \times 100 = 28\%$$

$$\text{BEP (in value)} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{1{,}68{,}000}{28\%} = 6{,}00{,}000$$

Fixed cost Rs. 2,00,000; Sales Rs. 8,00,000; P/V Ratio 30%; the amount of' profit is _____.

A. Rs. 50,000.

B. Rs. 40,000 .

C. Rs. 35,000 .

D. Rs. 45,000 .

P/V Ratio is 25% and Margin of Safety is Rs; 3,00,000, the amount of profit is_____.

A. Rs. 1,00,000.

B. Rs. 80,000.

C. Rs. 75,000.

D. . Rs. 60,000.

Sunny Ltd. makes product-A which sells at ₹ 80 per unit.

Total fixed costs are ₹ 28,000 and marginal cost ₹ 42 per unit. The sales level (in units) that will provide a profit of ₹ 10,000 is

(A) 1,200 Units

(B) 1,500 Units

(C) 1,250 Units

(D) 1,000 Units

Let the sales unit be x.

Sales	80x
Less: Variable cost	(42x)
Contribution	38x

Net Profit + Fixed Cost = Contribution

28,000 + 10,000 = 38,000

Hence, 38x = 38,000

x = No. of units = 1,000

Total sales Rs. 20,00,000; Fixed expenses Rs. 4,00,000; P/V Ratio 40%; Break-even capacity in percentage is_____.

A. 40% .

B. 60% .

C. 50% .

D. 45%.

P Limited incurs fixed costs of Rs 1,00,000 Per annum. The company manufactures a single product and sells it for Rs 50 per unit. If the contribution to sales ratio is 40%, the break-even sales in units are

(a) 5,000

(b) 6,000

(c) 6,500

(d) 7,000

(e) 7,500

Break - even point occurs at 40% of` total capacity, margin of safety will be_____.

A. 40% .

B. 60% .

C. 80% .

D. 85% .

A company manufactures a single product with a variable cost per unit of Rs 22. The contribution to sales ratio is 45%. Monthly fixed costs are Rs 1,98,000. What is the breakeven point in units?

(a) 4,950

(b) 9,000

(c) 11,000

(d) 20,000

If the P/V Ratio of a product is 30% and selling price is Rs. 25 per unit, the marginal cost of the product would be_____.

A. Rs.18.75 .

B. Rs.16 .

C. Rs. 15 .

D. Rs.20 .

A Ltd. manufactures and sells product 'B'. The sale price per unit of the product is Rs 35. The company will incur a loss of Rs 5.00 per unit if it sells 4,000 units; but if the volume is raised to 12,000 units, the company will make a profit of Rs. 4.50 per unit. The break-even point in units is

(a) 5,700

(b) 6,612

(c) 5,250

(d) 6,162

The profit-volume ratio and margin of safety ratio are 30% and 40% respectively. If the total sales are Rs 3,00,000, the profit of the firm is

(a) Rs 54,000

(b) Rs 48,000

(c) Rs 36,000

(d) Rs 30,000

(e) Rs 25,000

When the sales increase from Rs. 40,000 to Rs. 60,000 and profit increases by Rs. 5,000, the P/V ratio is —

(a) 20%

(b) 30%

(c) 25%

(d) 40%.

The following information is given about Zac Ltd. dealing in musical instruments:

P/V ratio 50% Margin of safety 40%

If the sales volume is ₹ 50,00,000 the net profit will be

(A) ₹ 15,00,000

(B) ₹ 10,00,000

(C) ₹ 20,00,000

(D) ₹ 5,00,000

If actual sales assumed at 100% then BEP must be at 60% as the Margin of safety is 40%.

BEP Sales = 50,00,000 × 60% = 30,00,000

Contribution at BEP = 30,00,000 × 50% = 15,00,000

At BEP Contribution = Fixed cost hence Fixed Cost is also ₹ 15,00,000

Particulars	Actual	BEP
Sales	50,00,000	30,00,000
(-) Variable Cost	(25,00,000)	(15,00,000)
Contribution	25,00,000	15,00,000
(-) Fixed Cost	(15,00,000)	(15,00,000)
Net Profit	10,00,000	Nil

The conventional Break-even analysis does not assume that_____.

A. selling price per unit will remain fixed .

B. total fixed costs remain the same.

C. variable cost per unit will vary .

D. productivity per worker will remain unchanged.

A company manufactures a single product which it sells for Rs 15 per unit. The product has a contribution to sales ratio of 40%. The company's weekly break-even point is sales of Rs 18,000. What would be the profit in a week when 1,500 units are sold?

(a) Rs 900

(b) Rs 1,800

(c) Rs 2,700

(d) Rs 4,500

An organization manufactures a single product. The total cost of making 4,000 units is Rs 20,000 and the total cost of making 20,000 units is Rs 40,000. Within this range of activity the total fixed costs remain unchanged. What is the variable cost per unit of the product?

(a) Rs 0.08

(b) Rs 1.20

(c) Rs 1.25

(d) Rs 2.00

5,400 units of a company's single product were sold for total revenue of Rs 1,40,400. Fixed costs in the period were Rs and net profit was Rs 11,880. What was the contribution per unit?

(a) Rs 7.30

(b) Rs 9.50

(c) RS 16.50

(d) Rs 18.70

Sales are Rs 3,20,000 fixed costs are Rs 80,000 and variable costs are Rs 1,20,000. What is the safety margin?

(a) Rs 18,900

(b) Rs 20,000

(c) Rs 1,92,000

(d) Rs 1,28,000

(e) Rs 1,31,000

An organization manufactures a single product that has a variable cost of Rs 36 per unit. The organization's total weekly fixed costs are Rs.81,000 and it has a contribution to sales ratio of 40%. This week it plans to manufacture and sell 5,000 units. What is the organization's margin of safety in units?

(a) 1,625

(b) 2,750

(c) 3,375

(d) 3,500

A company makes a single product and incurs fixed costs of Rs. 30,000 per annum. Variable cost per unit is Rs. 5 and each unit sells for Rs. 15. Annual sales demand is 7,000 units. The breakeven point is:

(a) 2,000 units

(b) 3,000 units

(c) 4,000 units

(d) 6,000 units

An organization's break-even point is 4,000 units at a sales price of Rs 50 per unit, variable cost of Rs 30 per unit, and total fixed costs of Rs 80,000. If the company sells 500 additional units, by how much will its profit increase?

(a) RS 25,000

(b) Rs 15,000

(c) Rs 12,000

(d) Rs 37,000

(e) Rs 10,000

Banta Ltd. manufactures product KDM for the last ten years. The company maintains a margin of safety of 36% with an overall contribution to sales ratio of 35%. If fixed cost is Rs 8.4 lakh, the profit of the company is

(a) Rs 11.400 lakh

(b) Rs 24.000 lakh

(c) Rs 4.725 lakh

(d) Rs 37.500 lakh

(e) Rs 8.644 lakh

Absorption costing is also known as_____.

A. historical costing.

B. real costing.

C. marginal costing.

D. Job costing .

A company wishes to make a profit of Rs 1,50,000. It has fixed costs of Rs 75,000 with a C/S ratio of 0.75 and a selling price of Rs 10 per unit. How many units would the company need to sell in order to achieve the required level of profit?

(a) 10,000 units

(b) 15,000 units

(c) 22,500 units

(d) 30,000 units

A company has a profit-volume ratio of 20%. To maintain the same contribution, by what percentage (%) must sales be increased to offset 10% reduction in selling price?

(a) 10

(b) 20

(c) 100

(d) 50

(e) 80

Period costs are_____.

A. overhead costs.

B. prime cost.

C. variable cost.

D. fixed costs.

1f` fixed costs decrease while variable cost per unit remains constant, the new B.E.P in relation to the old B.E.P will be_____.

A. lower

B. higher.

C. . Unchanged .

D. indeterminate.

Under marginal costing stock are valued at _____.

A. fixed cost.

B. semi-variable cost.

C. variable cost.

D. market price.

Contribution margin contributes to meet which one of the following options?

a. Variable cost

b. Fixed cost

c. Operating cost

d. Net profit

If fixed costs decrease while the variable cost per unit remains constant, the new contribution margin in relation to the old contribution margin will be_____.

A. lower .

B. unchanged .

C. higher.

D. indeterminate.

Alpha company purchased a machine worth Rs 200,000 four years before. The cost of that machine is to be called:

a. Project cost

b. Sunk cost

c. Opportunity cost

d. Relevant cost

Opportunity cost is the best example of:

a. Sunk Cost

b. Standard Cost

c. Relevant Cost

d. Irrelevant Cost

Beginning goods in process were Rs.15,000. The cost of goods manufactured is Rs 245,000. What is the cost assigned to the ending goods in process?

a. Rs 45,000

b. Rs 15,000

c. Rs 30,000

d. There will be no ending Inventory

Marginal costing is also known as:

a. Indirect costing

b. Direct costing

c. Variable costing

d. Both (b) and (c)

The difference between total revenues and total variable costs is known as:

a. Contribution margin

b. Gross margin

c. Operating income

d. Fixed costs

Percentage of Margin of Safety can be calculated in which one of the following ways?

a. Based on budgeted Sales

b. Using budget profit

c. Using profit & Contribution ratio

d. All of the given options

An increase in selling price_____.

A. increases the break-even point.

B. decreases the break-even point.

C. does not affect the break-even point.

D. optimizes the break-even point.

The cost expended in the past that cannot be retrieved on product or service

a. Relevant Cost

b. Sunk Cost

c. Product Cost

d. Irrelevant Cost

Contribution margin contributes to meet which one of the following options?

a. Variable cost

b. Fixed cost

c. Operating cost

d. Net profit

One of the primary differences between marginal costing and absorption costing regarding the treatment of _____.

A. prime cost.

B. fixed overheads.

C. variable overheads.

D. direct materials.

The term 'contribution' refers to?

a. The actual amount of profit made per unit.

b. The budgeted profit per unit.

c. The amount of profit which goes towards meeting the overheads of the business.

d. The difference between sales revenue and variable costs per unit.

The break-even point is that at which:

a. The level of activity at which the business operates most economically.

b. The level of activity at which the business makes neither a profit nor a loss.

c. The fixed costs are lowest.

d. The variable cost per unit is minimized.

The actual output of 162,500 units and actual fixed costs of Rs. 87000 were exactly as budgeted. However, the actual expenditure of Rs 300,000 was Rs. 18,000 over budget.

What was the budget variable cost per unit?

(a) Rs 1.20

(b) Rs 1.31

(c) Rs1.42

(d) Rs 1.50

When a business is faced with a limiting factor (one which limits the activity of an entity) and there is a choice to be made between options to follow, which of the following statements describes the optimal course of action?

a. Choose the option which gives the highest unit profit.

b. Choose the option which gives the highest unit contribution.

c. Aim to achieve a balance of activities covering all of the options.

d. Choose the option which gives highest contribution per unit of limiting factor.

If an owned building is used for a business project, the likely rent of the building receivable if let out is an example of _____

a. Sunk cost

b. Imputed cost

c. Opportunity cost

d. Notional cost

Cost incurred even after shutting down of plant or temporary stoppage of production is

a. Shut down cost

b. Imputed cost

c. Opportunity cost

d. Discretionary cost

Costs to be incurred to avoid the hampering of production is called _____

a. Out of stock cost

b. Shut down cost

c. Discretionary cost

d. Urgent cost

Cost to be incurred at present or in future to replace an asset or material is

a. Development cost

b. Research cost

c. Expired cost

d. Replacement cost

Change in costs due to change in the level of activity is called _____

a. Marginal cost

b. Differential cost

c. Abnormal cost

d. Uncontrollable cost

Incremental cost and decremental cost are classifications of _____

a. Marginal cost

b. Abnormal cost

c. Uncontrollable cost

d. Differential cost

When cost increases due to change in level of activity, such increase in known as

a. Unavoidable cost

b. Uncontrollable cost

c. Incremental cost

d. None of the above

Any cost ascertained after being incurred and has no use in cost control decisions are called

a. Predetermined cost

b. Historical cost

c. Unavoidable cost

d. None of the above

The additional cost incurred to produce one additional unit is called _____

a. Incremental cost

b. Development cost

c. Marginal cost

d. Cost of production

Which among the following is the cost of searching for a new product or improved products or improved methods of production?

a. Normal cost

b. Research cost

c. Product cost

d. Opportunity cost

Hypothetical costs which do not involve any cash outlay and used solely for the purpose of decision making are called

a. Indirect costs

b. Notional costs

c. Explicit costs

d. None of the above

Rent on own building is an example of _____

a. Imputed cost

b. Explicit cost

c. Standard cost

d. Abnormal cost

Committed costs refers to

a. Costs which remain fixed in total

b. Costs which vary in total but remain constant per unit

c. Fixed costs which will continue to incur after stoppage of production

d. None of these

Imputed cost is a_____.

A. notional cost.

B. real cost.

C. normal cost.

D. variable cost.

In 'make or buy' decision, it is profitable to buy from outside only when the supplier's price is below the firm's own _____.

(a) Fixed Cost

(b) Variable Cost

(c) Total Cost

(d) Prime Cost

Wages paid to a labour who was engaged in production activities can be termed as.

A. direct cost.

B. indirect cost.

C. sunk cost.

D. imputed cost.

The cost which is to be incurred even when a business unit is closed is a.

A. imputed cost.

B. historical cost.

C. sunk cost.

D. shutdown cost.

Production cost under marginal costing includes _____.

A. prime cost only.

B. prime cost and fixed overhead.

C. Prime cost and variable overhead.

D. prime cost, variable overhead and fixed overhead.

Which of the following is not relevant cost information in a make or buy decision?

a. Variable cost of making

b. General fixed cost

c. Purchase price

d. Loss of contribution to make the product

Uncontrollable costs are the costs which be influenced by the action of a specified member of an undertaking.

(a) Cannot

(b) Can

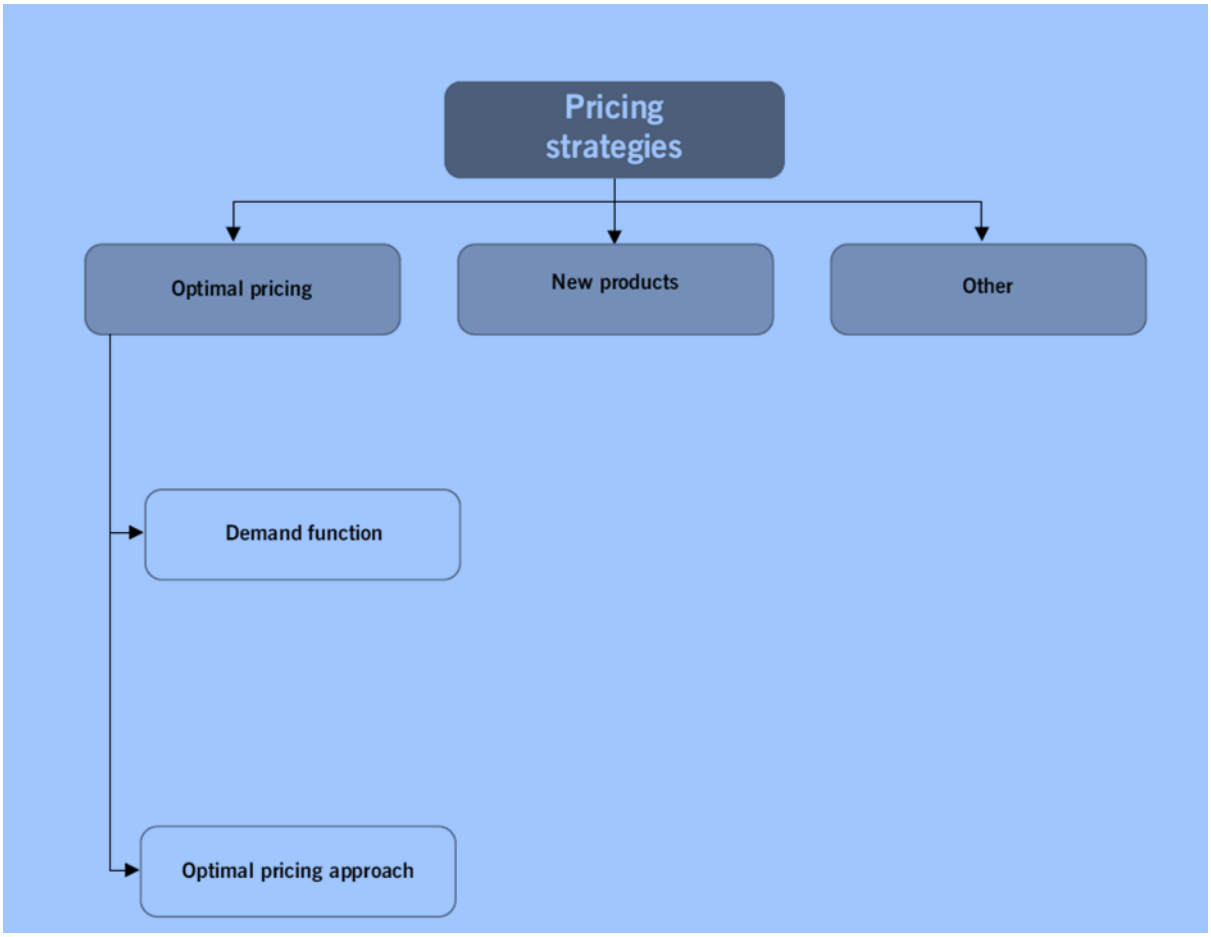
(c) may or may not

(d) must

Pricing decisions and Strategies-New Product Pricing, Monopoly Pricing v. Competitive Pricing, Pricing of Service Sector

Although pricing is no longer viewed as being the most important decision made by the sales and marketing teams, it is still important for profit-making purposes and hence the company's survival. It is a highly competitive tool, particularly in markets where product differentiation is dominant.

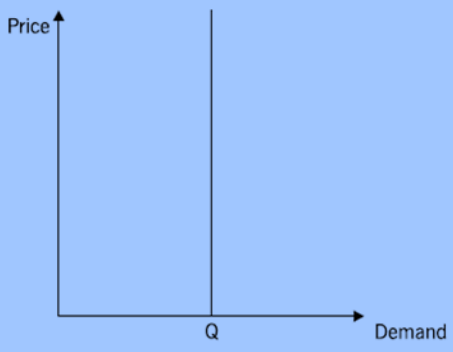
This module focuses not only on pricing decisions but also on pricing strategies. The pricing strategy adopted will depend heavily on the type of market in which the product is being sold and the product's position in its life cycle.



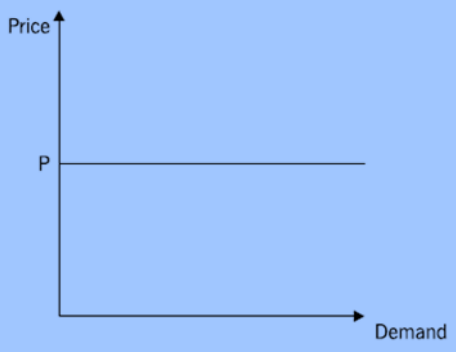
Issue 1: the relationship between price and demand

There are two extremes in the relationship between price and demand. A supplier can either **sell a certain quantity, Q, at any price** (as in graph (a)). Demand is totally unresponsive to changes in price and is said to be **completely inelastic**. Alternatively, **demand might be limitless at a certain price** P (as in graph (b)), but there would be no demand above price P and there would be little point in dropping the price below P. In such circumstances, demand is said to be **completely elastic**.

(a)



(b)



A more **normal situation** is shown below. The **downward-sloping** demand curve shows the inverse relationship between unit selling price and sales volume. As one rises, the other falls. Demand is **elastic** because demand will increase as prices are lowered.

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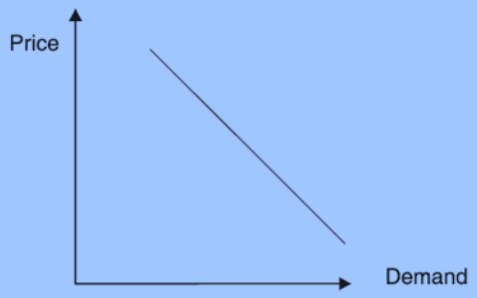


Elasticity and the pricing decision

In practice, organisations will have only a rough idea of the shape of their demand curve: there will only be a limited amount of data about quantities sold at certain prices over a period of time and, of course, factors other than price might affect demand. Because any conclusions drawn from such data can only give an indication of likely future behaviour, management skill and expertise are also needed. Despite this limitation, an awareness of the concept of elasticity can assist management with pricing decisions.

(a) (i) With inelastic demand, increase prices because revenues will increase and total costs will reduce (because quantities sold will reduce).

(ii) With elastic demand, increases in price will bring decreases in revenue and decreases in price will bring increases in revenue. Management therefore have to decide whether the increase/decrease in costs will be less than/greater than the increases/decreases in revenue.

(b) In situations of very elastic demand, overpricing can lead to massive drops in quantity sold and hence profits, whereas under-pricing can lead to costly inventory outs and, again, a significant drop in profits. Elasticity must therefore be reduced by creating a customer preference which is unrelated to price (through advertising and promotion).

(c) In situations of very inelastic demand, customers are not sensitive to price. Quality, service, product mix and location are therefore more important to a firm's pricing strategy.

(d) In practice, the prices of many products, such as consumer durables, need to fall over time if demand is to rise. Costs must therefore fall by the same percentage to maintain margins.

Issue : demand and the market

Economic theory suggests that the volume of demand for a good in the market as a whole is influenced by a variety of variables.

The price of the good

Tastes and fashion

The price of other goods

The perceived quality of the product

Expectations

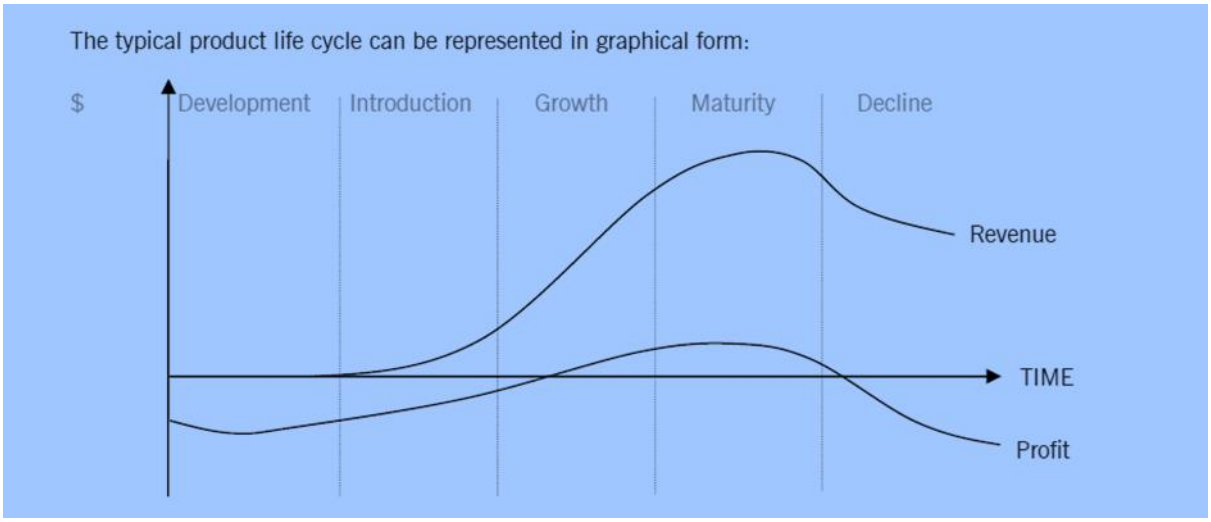
The size and distribution of household income

Obsolescence

Issue : demand and the individual firm

Product life cycle

PRODUCT LIFE CYCLE is 'The period which begins with the initial product specification, and ends with the withdrawal from the market of both the product and its support. It is characterised by defined stages including research, development, introduction, maturity, decline and abandonment'



The four phases are described in more detail below:

Phase	Description
Introduction	The product is introduced to the market. Heavy capital expenditure will be incurred on product development and perhaps on the purchase of new non-current assets and building up inventory. On its launch, the product will earn some revenue, but initial demand is likely to be small. Potential customers will be unaware of the product or service, and more advertising spend may be needed to bring it to the attention of the market.
Growth	The product gains a bigger market as demand builds up. Sales revenues increase and the product begins to make a profit. The initial costs of the investment in the new product are gradually recovered.
Maturity	Eventually, growth in demand for the product will slow down and it will enter a period of relative maturity. It will continue to be profitable. The product may be modified or improved, as a means of sustaining demand.
Saturation and decline	At some stage, the market will have bought enough of the product and it will therefore reach 'saturation point'. Demand will fall. For a while, the product will still be profitable despite falling sales, but eventually it will become a loss-maker and this is the time when the organisation should stop selling the product, and so then its life cycle should reach its end.

The life expectancy of a product will influence the pricing decision. Short-life products must be quite highly priced so as to give the manufacturer a chance to recover his investment and make a worthwhile return. This is why fashion goods and new high technology goods, for example, tend to have high prices.

The current tendency is towards shorter product life cycles. Notwithstanding this observation, the life cycles of different products may vary in terms of length of phases, overall length and shape.

(a) Fashion products have a very short life and so do high technology products because they become rapidly outdated by new technological developments.

(b) Different versions of the same product may have different life cycles, and consumers are often aware of this. For example, the prospective buyer of a new car is more likely to purchase a recently introduced Ford than a Vauxhall that has been on the market for several years; even if there is nothing to choose in terms of quality and price.

Quality

One firm's product may be perceived to be better quality than another's, and may in some cases actually be so, if it uses sturdier materials, goes faster or does whatever it is meant to do in a 'better' way. Other things being equal, the better quality good will be more in demand than other versions.

Marketing

You may be familiar with the 'four Ps' of the marketing mix, all of which influence demand for a firm's goods.

Ps	Details
Price	This refers to the price at which the product is being sold.
Product	This refers to the particular product being analysed.
Place (or Distribution)	This refers to the place where a good can be, or is likely to be, purchased. • If a good is difficult to obtain, potential buyers will turn to substitutes. • Some goods only have a local appeal.
Promotion	This refers to the various means by which firms draw attention to their products and services. • A good brand name is a strong influence on demand. • Demand can be stimulated by a variety of promotional tools, such as free gifts, money off, shop displays, direct mail and media advertising.

In recent years, emphasis has been placed, especially in marketing, on the importance of non-price factors in demand. Thus the roles of product quality, promotion, personal selling and distribution and, in overall terms, brands, have grown. While it can be relatively easy for a competitor to copy a price cut, at least in the short term, it is much more difficult to copy a successful brand image.

Other issues that influence pricing decisions

Issue 4: markets

The price that an organisation can charge for its products will be determined to a greater or lesser degree by the market in which it operates. Here are some familiar terms that might feature as background for a question or that you might want to use in a written answer.

(a) PERFECT COMPETITION: many buyers and many sellers all dealing in an identical product. Neither producer nor user has any market power and both must accept the prevailing market price.

(b) MONOPOLY: one seller who dominates many buyers. The monopolist can use his market power to set a profit-maximising price.

(c) MONOPOLISTIC COMPETITION: a large number of suppliers offer similar, but not identical, products.

The similarities ensure elastic demand, whereas the slight differences give some monopolistic power to the supplier.

d) OLIGOPOLY: where relatively few competitive companies dominate the market. Whilst each large firm has the ability to influence market prices, the unpredictable reaction from the other giants makes the final industry price indeterminate. CARTELS are often formed.

Issue 5: competition

In established industries dominated by a few major firms, it is generally accepted that a price initiative by one firm will be countered by a price reaction by competitors. In these circumstances, prices tend to be fairly stable, unless pushed upwards by inflation or strong growth in demand.

If a rival cuts its prices in the expectation of increasing its market share, a firm has several options.

(a) It will maintain its existing prices if the expectation is that only a small market share would be lost, so that it is more profitable to keep prices at their existing level. Eventually, the rival firm may drop out of the market or be forced to raise its prices.

(b) It may maintain its prices but respond with a non-price counter-attack. This is a more positive response, because the firm will be securing or justifying its current prices with a product change, advertising, or better back-up services.

(c) It may reduce its prices. This should protect the firm's market share so that the main beneficiary from the price reduction will be the consumer.

(d) It may raise its prices and respond with a non-price counter-attack. The extra revenue from the higher prices might be used to finance an advertising campaign or product design changes. A price increase would be based on a campaign to emphasise the quality difference between the firm's own product and the rival's product.

Fighting a price war

(a) Sell on value, not price, where value is made up of service, response, variety, knowledge, quality, guarantee and price.

(b) Target service, not product market niches, to build in the six non-price factors in (a) above.

The Marriott hotel chain has chosen to compete in the premium market on service. When guests arrive, instead of queuing at a busy reception, they are met at the front door by a host who gives them their room key.

(c) Use 'package pricing' to attract customers

Computer retailers such as PC World have beaten discounters by offering peripherals, discounted software and extended warranties as part of their more expensive packages.

(d) Make price comparisons difficult. Terrestrial and mobile phone companies offer a bewildering variety of rates and discount offers which disguise the core price and make comparisons almost impossible.

(e) Build up key accounts, as it is cheaper to get more business from an existing customer than to find a new one. Customer profitability analysis, is important here.

(f) Explore new pricing models. E-business provides opportunities to use new pricing models.

(i) On-line auctions for a wide range of products are carried out on certain websites.

(ii) Other websites use a 'community shopping' pricing model, where the price of an item falls as more people buy it.

(iii) Marginal cost pricing is used on certain websites to get rid of inventory such as unsold theatre tickets and holidays.

Other issues

Issue	*Explanation/example*
Price sensitivity	This will vary amongst purchasers. Those that can pass on the cost of purchases will be the least sensitive and will therefore respond more to other elements of perceived value. For example, the business traveller will be more concerned about the level of service and quality of food in looking for a hotel than price, provided that it fits the corporate budget. In contrast, the family on holiday are likely to be very price sensitive when choosing an overnight stay.
Price perception	This is the way customers react to prices. For example, customers may react to a price increase by buying more. This could be because they expect further price increases to follow (they are 'stocking up').
Compatibility with other products	A typical example is operating systems on computers, for which a user would like to have a wide range of compatible software available. For these types of product there is usually a **cumulative effect on demand**. The more people who buy one of the formats, the more choice there is likely to be of software for that format. This in turn is likely to influence future purchasers. The owner of the rights to the preferred format will eventually find little competition and will be able to charge a premium price for the product.
Competitors	An organisation, in setting prices, sends out signals. Competitors are likely to react to these signals in some way. In some industries (such as petrol retailing) pricing moves in unison; in others, price changes by one supplier may initiate a price war, with each supplier undercutting the others. Competition is discussed in more detail below.

Competition from substitute products	These are products which could be transformed for the same use or which might become desirable to customers at particular price levels. For example, train travel comes under competition as the quality, speed and comfort of coach travel rises. Similarly, if the price of train travel rises, it comes under competition from cheaper coach travel and more expensive air travel.
Suppliers	If an organisation's suppliers notice a price rise for the organisation's products, they may seek a rise in the price for their supplies to the organisation on the grounds that it is now able to pay a higher price.
Inflation	In periods of inflation the organisation may need to change prices to reflect increases in the prices of supplies and so on. Such changes may be needed to keep relative (real) prices unchanged.
Quality	In the absence of other information, customers tend to judge quality by price. Thus a price change may send signals to customers concerning the quality of the product. A price rise may indicate improvements in quality; a price reduction may signal reduced quality, for example through the use of inferior components.
Incomes	In times of rising incomes, price may become a less important marketing variable compared with product quality and convenience of access (distribution). When income levels are falling and/or unemployment levels rising, price will become a much more important marketing variable.

The profit-maximising price/output level

The overall objective of an organisation should be profit maximisation. In this section we look at how the profit-maximising price and output levels can be derived. Remember that, in microeconomic theory, profits are maximised when marginal revenue = marginal cost.

Microeconomic theory and profit maximisation

Microeconomic theory suggests that as output increases, the marginal cost per unit might rise (due to the law of diminishing returns) and whenever the firm is faced with a downward sloping demand curve, the marginal revenue per unit will decline.

Eventually, a level of output will be reached where the extra cost of making one extra unit of output is greater than the extra revenue obtained from its sale. It would then be unprofitable to make and sell that extra unit.

Profits will continue to be maximised only up to the output level where marginal cost has risen to be exactly equal to the marginal revenue.

Optimum pricing in practice

There are problems with applying the approach described above in practice for the following reasons.

(a) It assumes that the demand curve and total costs can be identified with certainty. This is unlikely to be so.

(b) It ignores the market research costs of acquiring knowledge of demand.

(c) It assumes the firm has no production constraint, which could mean that the equilibrium point between supply and demand cannot be reached.

(d) It assumes the objective is to maximise profits. There may be other objectives.

Microsoft dominates the market for many types of computer software, but this domination was not achieved by setting short-term profit-maximising selling prices for the MS-DOS and Windows operating systems. By offering cheap licences to PC manufacturers for use of these operating systems, Microsoft

word processing, spreadsheet, graphics and database packages have become almost industry-standard.

(e) It assumes that price is the only influence on quantity demanded.

(f) It is complicated by the issue of price discrimination (the practice of charging different unit selling prices for the same product). We look at price discrimination later in the chapter.

(g) Although there are arguments for the applicability of the concept of the profit-maximising unit selling price in traditional markets where homogenous, mass-produced products are in continuous supply (such as public transport), the modern trend is towards short product life cycles and a high degree of product differentiation.

Full cost-plus pricing

Reasons for its popularity

In practice cost is one of the most important influences on price. Many firms base price on simple cost plus rules (costs are estimated and then a mark-up is added in order to set the price).

Number of reasons for the predominance of this method.

(a) Planning and use of scarce capital resources are easier.

(b) Assessment of divisional performance is easier.

(c) It emulates the practice of successful large companies.

(d) Organisations fear government action against 'excessive' profits.

(e) There is a tradition of production rather than of marketing in many organisations.

(f) There is sometimes tacit collusion in industry to avoid competition.

(g) Adequate profits for shareholders are already made, giving no incentive to maximise profits by seeking an 'optimum' selling price.

(h) Cost-based pricing strategies based on internal data are easier to administer.

(i) Over time, cost-based pricing produces stability of pricing, production and employment.

FULL COST-PLUS PRICING is a method of determining the sales price by calculating the full cost of the product and adding a percentage mark-up for profit.

Marginal cost-plus (mark-up) pricing

MARGINAL COST-PLUS PRICING/MARK-UP PRICING is a method of determining the sales price by adding a profit margin on to either marginal cost of production or marginal cost of sales.

Marginal cost-plus pricing involves adding a profit margin to the marginal cost of production/sales. A marginal costing approach is more likely to help with identifying a profit-maximising price.

Pricing based on mark-up per unit of limiting factor

Another approach to pricing might be taken when a business is working at full capacity and is restricted by a shortage of resources from expanding its output further. By deciding what target profit it would like to earn, it could establish a mark-up per unit of limiting factor.

Pricing strategies for new products

When a new product is launched, it is essential that the company gets the pricing strategy correct, otherwise the wrong message may be given to the market (if priced too cheaply) or the product will not sell (if the price is too high). This section looks at how to approach pricing for new products to ensure a smooth launch.

A new product pricing strategy will depend largely on whether a company's product or service is the first of its kind on the market.

(a) If the product is the first of its kind, there will be no competition yet, and the company, for a time at least, will be a monopolist. Monopolists have more influence over price and are able to set a price at which they think they can maximise their profits. A monopolist's price is likely to be higher, and its profits bigger, than those of a company operating in a competitive market.

(b) If the new product being launched by a company is following a competitor's product onto the market, the pricing strategy will be constrained by what the competitor is already doing. The new product could be given a higher price if its quality is better, or it could be

given a price which matches the competition. Undercutting the competitor's price might result in a price war and a fall of the general price level in the market.

Market penetration pricing

MARKET PENETRATION PRICING is a policy of low prices when the product is first launched in order to obtain sufficient penetration into the market.

Circumstances in which a penetration policy may be appropriate.

(a) If the firm wishes to discourage new entrants into the market.

(b) If the firm wishes to shorten the initial period of the product's life cycle in order to enter the growth and maturity stages as quickly as possible.

(c) If there are significant economies of scale to be achieved from a high volume of output, so that quick penetration into the market is desirable in order to gain unit cost reductions.

(d) If demand is highly elastic and so would respond well to low prices.

Penetration prices are prices which aim to secure a substantial share in a substantial total market. A firm might therefore deliberately build excess production capacity and set its prices very low. As demand builds up, the spare capacity will be used up gradually and unit costs will fall; the firm might even reduce prices further as unit costs fall. In this way, early losses will enable the firm to dominate the market and have the lowest costs.

Market skimming pricing

MARKET SKIMMING PRICING involves charging high prices when a product is first launched and spending heavily on advertising and sales promotion to obtain sales.

As the product moves into the later stages of its life cycle, progressively lower prices will be charged and so the profitable 'cream' is skimmed off in stages until sales can only be sustained at lower prices.

The aim of market skimming is to gain high unit profits early in the product's life. High unit prices make it more likely that competitors will enter the market than if lower prices were to be charged.

Circumstances in which such a policy may be appropriate.

(a) Where the product is new and different, so that customers are prepared to pay high prices so as to be one up on other people who do not own it.

(b) Where the strength of demand and the sensitivity of demand to price are unknown. It is better from the point of view of marketing to start by charging high prices and then reduce them if the demand for the product turns out to be price elastic, than to start by charging

low prices and then attempt to raise them substantially if demand appears to be insensitive to higher prices.

(c) Where high prices in the early stages of a product's life might generate high initial cash flows. A firm with liquidity problems may prefer market-skimming for this reason.

(d) Where the firm can identify different market segments for the product, each prepared to pay progressively lower prices. If product differentiation can be introduced, it may be possible to continue to sell at higher prices to some market segments when lower prices are charged in others. This is discussed further below.

(e) Where products may have a short life cycle, and so need to recover their development costs and make a profit relatively quickly.

Other pricing strategies

Product differentiation and price discrimination

PRICE DISCRIMINATION is the practice of charging different prices for the same product to different groups of buyers when these prices are not reflective of cost differences.

In certain circumstances, the same product can be sold at different prices to different customers. There are a number of bases on which such discriminating prices can be set.

Basis	*Detail*
By market segment	A cross-channel ferry company would market its services at different prices in England and France, for example. Services such as cinemas and hairdressers are often available at lower prices to pensioners and/or juveniles.
By product version	Many car models have **optional extras** which enable one brand to appeal to a wider cross-section of customers. The final price need not reflect the cost price of the optional extras directly: usually the top-of-the-range model would carry a price much in excess of the cost of provision of the extras, as a prestige appeal.
By place	Theatre seats are usually sold according to their location so that patrons pay different prices for the same performance according to the seat type they occupy.
By time	This is perhaps the most popular type of price discrimination. Off-peak travel bargains, hotel prices and telephone charges are all attempts to increase sales revenue by covering variable but not necessarily average cost of provision. Railway companies are successful price discriminators, charging more to rush hour rail commuters whose demand is inelastic at certain times of the day.

Price discrimination can only be effective if a number of conditions hold.

(a) The market must be segmentable in price terms, and different sectors must show different intensities of demand. Each of the sectors must be identifiable, distinct and separate from the others, and be accessible to the firm's marketing communications.

(b) There must be little or no chance of a black market developing (this would allow those in the lower priced segment to resell to those in the higher priced segment).

(c) There must be little or no chance that competitors can and will undercut the firm's prices in the higher priced (and/or most profitable) market segments.

(d) The cost of segmenting and administering the arrangements should not exceed the extra revenue derived from the price discrimination strategy.

'Own label' pricing: a form of price discrimination

Many supermarkets and multiple retail stores sell their 'own label' products, often at a lower price than established branded products. The supermarkets or multiple retailers do this by entering into arrangements with manufacturers, to supply their goods under the 'own brand' label.

Premium pricing

This involves making a product appear 'different' through product differentiation so as to justify a premium price. The product may be different in terms of, for example, quality, reliability, durability, after sales service or extended warranties. Heavy advertising can establish brand loyalty, which can help to sustain a premium, and premium prices will always be paid by those customers who blindly equate high price with high quality.

Product bundling

Product bundling is a variation on price discrimination which involves selling a number of products or services as a package at a price lower than the aggregate of their individual prices. For example, a hotel might offer a package that includes the room, meals, use of leisure facilities and entertainment at a combined price that is lower than the total price of the individual components. This might encourage customers to buy services that they might otherwise not have purchased.

The success of a bundling strategy depends on the expected increase in sales volume and changes in margin. Other cost changes, such as in product handling, packaging and invoicing costs, are possible.

Longer-term issues, such as competitors' reactions, must also be considered.

Pricing with optional extras

The decision here is very similar to that for product bundling. It rests on whether the increase in sales revenue from the increased price that can be charged is greater than the increase in costs required to incorporate extra features. Not all customers will be willing to pay a higher price for additional features if they do not want or need those features.

Loss leader pricing

A loss leader is when a company sets a very low price for one product intending to make customers buy other products in the range which carry higher profit margins. An example is selling inkjet printers at a relatively low price whilst selling the print cartridges at a higher profit margin. People will buy many of the high-profit items but only one of the low-profit items, yet they are 'locked in' to the former by the latter.

Using discounts

Reasons for using discounts to adjust prices:

To get rid of perishable goods those have reached the end of their shelf life

To sell off seconds

Normal practice (e.g., antique trade)

To increase sales volumes during a poor sales period without dropping prices permanently

To differentiate between types of customer (wholesale, retail and so on)

To get cash in quickly

Controlled prices

Many previously nationalised industries now operate within the private sector and are overseen by an industry regulator (such as OFCOM for telecommunications).

Regulators tend to concentrate on price so that these near monopolies cannot exploit their position (although the regulators are also concerned with quality of service/product).

If a price is regulated, the elasticity of demand is zero: 'small' customers pay less than they otherwise would, whereas 'large' customers pay more than in a competitive environment.

Prices have become more flexible in recent years, however:

(a) Introduction of discounted price for very large customers

(b) Entry of other companies into the market

PRICING IN SERVICES

Pricing plays an important role in the marketing mix of service because pricing attracts revenue to the business and has direct impact on profits.

Pricing reflects the value attached to the service by the service provider and must correspond with the customer’s perception of value if the service is priced too high it may be seen as poor value for money. At the same time if the price is low, the service may be

understood to be of inferior quality. Pricing is a dynamic tool for meeting competition. In simple terms price is the exchange value for a product or service, expressed in terms of money.

Pricing is the art of translating into quantitative terms the value of the product or a unit of a service to customers. It involves – establishing pricing objectives, identifying the factors governing the price, determining the methods of pricing and formulation of pricing strategies and policies.

The whole marketing system is affected by pricing.

• It affects the standard of living of the people; it regulates sales growth and thus brings about economic development.

• Pricing also helps the organization to achieve its financial objectives.

• Pricing is the mechanism that constantly monitors the alternative use of capital and it corrects itself as and when competition intensifies.

The pricing program must be monitored once it is implemented so that corrective action may be taken immediately. The steps involved are:

• Analyzing the organizational objectives

• Determine demand levels and customer characteristics.

• Examine competitor pricing and positioning.

• Consider the regulatory measures relating to pricing

• Set price based on the method adopted – cost, demand, competitor.

• Implement suitable strategy based on market condition.

Except profitability and growth, a firm may achieve many more specific & situational objectives through pricing. An analysis of the firm's objectives is the starting point for understanding the factors that influence pricing decisions, they are: Survival, Maximize Profit, Maximize Market Share, Service Quality Leadership, Stimulating Patronage.

There are internal factors & External factors which have an impact on the actual pricing policy.

INTERNAL FACTORS:

(a) Organizational Factors – It refers to the internal arrangement for decision making and implementation. Pricing can be centralized or decentralized decision.

(b) Marketing Mix Elements – All the components of the marketing mix are interdependent and interact with each other. So they must be considered together and not in isolation. Price reflects the value of the service offer to the customer. As such price may not be a feature of promotion, but price sensitive services often rely on promotion to attract customers on the basis of price. People, process, and physical evidence are important in determining the "value for money" aspects in the service sector.

(c) Positioning – If the price is positioned on non-price factor then decision about quality, promotion, distribution and physical evidence will strongly influence price. But, if price is a key factor for positioning, then price will affect the decisions on the other marketing elements.

(d) Service Cost – Pricing policy should cover at least the basic cost. The various components of cost – fixed, variable and semi – variable influence the price of the service.

EXTERNAL FACTORS:

(a) Competition – Consumers evaluate the price and value of a service against those offered by the competitors.

(b) Demand – The price of the service is sometimes greatly influenced by what the consumers are prepared to pay. In such cases, the price must be set after taking into consideration consumer's perception of price, as he decides whether the service price is right.

(c) Regulatory factors – Sometimes in certain services, pricing is determined in collective fashion by trade associations or professional bodies. Under these conditions, the service firm has less influence in fixing prices.

SPECIAL ISSUES OF PRICING IN A SERVICE SECTOR

A service marketer must further consider the following issues regarding pricing methods and policies to be adopted due to its special characteristics, they are: Intangibility, Perishability, Customer Participation, Variability & Controllability.

METHODS OF PRICING IN SERVICES

The appropriate method by which price will be set is very important for the service provider, & it may vary for firm to firm in the service sector but some logical factors will be common, they are: The least price, The maximum price & The actual price. Based on these factors, the pricing method takes three forms – Cost based pricing, Demand based pricing & Competition based pricing. These three are interrelated so the companies sometimes use all three together to some extent in setting prices, to reduce the shortcomings of these methods.

PRICING STRATEGIES

The pricing strategies help in identifying how price can be combined with other elements of the marketing mix.

(1) NEW SERVICE PRICING STRATEGY: There are two alternative pricing strategy individuals while launching a new service:

(a) Price Skimming Strategy – In this strategy the new services are introduced at high prices. When the new service has special attributes and is not just a me-too service, price skimming is used. In this approach it is assumed that customers are more concerned about obtaining a quality service, rather than the cost of the service. It seeks to gain the highest possible price from the early adopters.

(b) Price Penetration – In this strategy, prices are fixed low to stimulate trial and there by ensure customer loyalty. Some retail markets and fast food outlets adopt this strategy as more often try holding me-too services and depending on customer loyalty for their growth.

(2) DIFFEENTIAL PRICING/MARKET SEGMENTATION PRICING: When different market segments show different price elasticity of demand, the strategy adopted to successfully cater to these groups is called as discriminatory pricing on the basis of market segmentation. Price discrimination may be resorted to on this basis: Groups of buyers, Different points of consumption, Different time of consumption.

(3) SERVICE MIX PRICING: Service firms with multiple services offering that are more often interrelated may resort to: Optional additional service, Captive service & competing services.

(4) PRICE BUNDLING: Bundling means pricing and selling service as a group rather than as individual offering. In this strategy, the service provider prices all his service offering as a package at a single price.

(5) RELATIONSHIP PRICING: This strategy follows the market oriented approach of value based pricing of all services provided to the customer and makes a potential profit stream over a given period of time.

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MCQs on Pricing Strategies

A company sets not a single price, but rather a _____ that covers different items in its line that change over time as products move through their life cycles.

A) Pricing by-product

B) Pricing structure

C) Pricing loop

D) Pricing cycle

E) Pricing bundle

Companies facing the challenge of setting prices for the first time can choose between two broad strategies: market-penetration pricing and _____.

A) market-level pricing

B) market-competitive pricing

C) market-skimming pricing

D) market-price lining

E) market-price filling

3) Of the following, which statement would NOT support a market-skimming policy for a new product?

A) The product's quality and image support its higher price.

B) Enough buyers want the products at that price.

C) Competitors are not able to undercut the high price

D) Competitors can enter the market easily.

E) C and D

A firm is using _____ when it charges a high, premium price for a new product with the intention of reducing the price in the future.

A) Price skimming

B) Trial pricing

C) Value pricing

D) Market-penetration pricing

E) Prestige pricing

_____ pricing is the approach of setting a low initial price in order to attract a large number of buyers quickly and win a large market share.

A) Market-skimming

B) Market-penetration

C) Below-market

D) Value-based

E) Leader

Accent Software faces the conditions below, all of which support Accent's use of a market-penetration pricing strategy EXCEPT that _____.

A) The market is highly price sensitive

B) Production and distribution costs will fall as sales volume increases

C) The product's quality and image support a high price

D) A low price would help keep out the competition

E) A and C

Which of the following is a reason that a marketer would choose a penetration pricing strategy?

A) To ensure the company has the ability to increase prices once demand decreases

B) To focus on the rapid achievement of profit objectives

C) To appeal to different consumer segments with different levels of price sensitivity

D) To create markets for highly technical products

E) To discourage competition from entering the market

Companies usually develop _____ rather than single products.

A) Product families

B) Product lines

C) Product groupings

D) Product brands

E) Product images

A marketer must be familiar with the five major product mix pricing situations. Which of the following is NOT one of them?

A) product line pricing

B) optional-product pricing

C) captive-product pricing

D) Unbundled product pricing

E) By-product pricing

A challenge for management in product line pricing is to decide on the price steps between the _____.

A) Various products in a line

B) Product mixes

C) Product groupings

D) Product lines

E) Various target markets

When using price steps, the seller must establish perceived _____ that support the price differences.

A) Nonprime competitions

B) Quality differences

C) Quantity levels

D) Images

E) Strategies

Many producers who use captive-product pricing set the price of the main product _____ and set _____ on the supplies necessary to use the product.

A) low; low markups

B) High; low markups

C) low; high markups

D) High; high markups

E) Moderately; moderate markups

When amusement parks and movie theaters charge admission plus fees for food and other attractions, they are following a(n) _____ pricing strategy.

A) by-product

B) optional-product

C) captive-product

D) Skimming

E) penetration

HiPoint Telephone Company uses two-part pricing for its long-distance call charges. Because this is a service, the price is broken into a fixed rate plus a _____.

A) Fixed rate usage

B) Variable usage rate

C) Standard usage rate

D) Market usage rate

E) None of the above

Companies involved in deciding which items to include in the base price and which to offer as options are engaged in _____ pricing.

A) Product bundle

B) optional-product

C) captive-product

D) By-product

E) Skimming

Keeping in mind that a seller must sell by-products at a price that covers more than the cost of storing and delivering them, which of the following will by-product pricing permit a seller to do?

A) Increase the main product's price

B) Make extra profit

C) Reduce the main product's price

D) None of the above

E) B and C

With product bundle pricing, sellers can combine several products and offer the bundle _____.

A) As a working unit

B) At a reduced price

C) As a complete self-service package

D) As a reward to loyal customers

E) As segmented pricing

What is a major advantage of product bundle pricing?

A) It can promote the sales of products consumers might not otherwise buy.

B) It offers consumers more value for the money.

C) It combines the benefits of the other pricing strategies.

D) It provides a more complete product experience for consumers.

E) All of the above.

Which of the following is NOT a price adjustment strategy?

A) Segmented pricing

B) Promotional pricing

C) Free samples

D) Geographical pricing

E) Seasonal pricing

Service Industries, Inc., plans to offer a price-adjustment strategy in the near future. They could consider each of the following EXCEPT _____.

A) discount and allowance pricing

B) segmented pricing

C) Physiological pricing

D) Promotional pricing

E) Location pricing

A quantity discount is a price reduction to buyers who purchase _____.

A) Frequently

B) Large volumes

C) Close outs

D) Inferior merchandise

E) Superior merchandise

Trade or functional discounts are offered by manufacturers to which of the following?

A) Channel members who perform tasks that the manufacturer would otherwise have to perform

B) Consumers who earn a price reduction for buying in bulk

C) Intermediaries such as financing institutions as a cost of doing business with them

D) Manufacturers that agree to exclusive distribution contracts

E) The government market and other organizations that require bid proposals

When General Motors provides payments or price reductions to its new car dealers as rewards for participating in advertising and sales support programs, it is granting a (n) _____.

A) Trade discount

B) Functional discount

C) Allowance

D) Promotional allowance

E) Trade credit

Quantity discounts provide an incentive to the customer to buy _____.

A) More products or services from a variety of sellers

B) Less from another competitor

C) More from one given seller, rather than from many different sources

D) more than he or she needs

E) Bundled merchandise

By definition, this type of pricing is used when a firm sells a product or service at two or more prices, even though the difference in price is not based on differences in cost.

A) Segmented pricing

B) Variable pricing

C) Flexible pricing

D) Cost-plus pricing

E) Reference pricing

When a firm varies its price by the season, month, day, or even hour, it is using _____ pricing.

A) Revenue management

B) Penetration

C) Variable

D) Time

E) Value-added

Airlines, hotels, and restaurants call segmented pricing _____.

A) Time pricing

B) Yield management

C) Location pricing

D) Segmented

E) Service pricing

Which of the following conditions should exist for segmented pricing to be an effective strategy?

A) The market must be able to be segmented.

B) The segments must show different degrees of demand.

C) Competitors can't undersell in the segment being charged the higher price.

D) All of the above.

E) None of the above.

Consumers usually perceive higher-priced products as _____.

A) Not within reach of most people

B) Having a higher quality

C) Having high profit margins

D) Popular brands

E) Being in the introductory stage of the product life cycle

Consumer use price less to judge the quality of a product when they _____.

A) Lack information

B) Lack skills to use the product

C) Have experience with the product

D) Are shopping for a specialty item

E) Cannot physically examine the product

M and J both own leather jackets and are currently shopping for two new ones. They both have prices in mind and refer to them when shopping. These prices are termed _____.

A) Psychological prices

B) Reference prices

C) Comparison prices

D) Price points

E) Skimmed prices

Which of the following refers to the prices that a buyer carries in his or her mind and refers to when looking at a given product?

A) Target prices

B) Reference prices

C) Promotional prices

D) Geographical prices

E) Dynamic prices

When consumers cannot judge quality because they lack the information or skill, price becomes _____.

A) Less important

B) Insignificant

C) An important quality signal

D) The only driver of the purchase

E) None of the above

All of the following are typical ways a reference price might be formed in a buyer's mind EXCEPT _____.

A) Noting current prices

B) Remembering past prices

C) Assessing the buying situation

D) Comparing it to a new product

E) Influences from sellers

What type of pricing is being used when a company temporarily prices it product below the list price or even below cost to create buying excitement and urgency?

A) Segmented pricing

B) Psychological pricing

C) Referent pricing

D) Promotional pricing

E) Dynamic pricing

Promotional pricing can have all of the following adverse effects EXCEPT _____.

A) Creating deal-prone customers

B) Eroding the brand's value in the eyes of customers

C) Giving pricing secrets away to competitors

D) Becoming addicting to both the customer and business

E) Instigating industry price wars

The most likely effect of the frequent use of promotional pricing is an industry _____.

A) Expansion

B) Price war

C) Erosion

D) Cooperation

E) Imbalance

Under which type of geographic pricing strategy does each customer pay the exact freight for the product from the factory to its destination?

A) Zone pricing

B) basing-point pricing

C) uniform-delivered pricing

D) FOB-origin pricing

E) Dynamic pricing

Using this pricing strategy, the seller takes responsibility for part or all of the actual freight charges in order to get the desired business.

A) FOB-origin

B) freight-absorption

C) basing-point

D) Loss leader

E) Zone pricing

Which of the following is the opposite of FOB-origin pricing?

A) basing-point pricing

B) freight-absorption pricing

C) uniform-delivered pricing

D) freight-absorption pricing

E) Zone pricing

The Internet offers _____, where the price can easily be adjusted to meet changes in demand.

A) Captive pricing

B) Dynamic pricing

C) basing-point pricing

D) Price bundling

E) Cost-plus pricing

Some companies are reversing the fixed pricing trend and using _____.

A) Captive pricing

B) segmented pricing

C) Promotional pricing

D) Dynamic pricing

E) Geographical pricing

When pricing internationally, most companies adjust their prices to reflect _____.

A) Local market conditions

B) Cost considerations

C) Local laws and regulations

D) exchange-rate fluctuations

E) all of the above

There are many reasons why a firm might consider cutting its price. All of the following are among them EXCEPT _____.

A) Excess capacity

B) Falling demand in the face of strong price competition

C) a drive to dominate the market through lower costs

D) Monopolistic competition

E) A drive to gain market share and cut costs through volume

Which of the following is a reason for a company to raise its prices?

A) To address the issue of over demand for a product

B) To win a larger share of the market

C) To use excess capacity

D) To boost sales volume

E) To balance out decreasing costs

Which of the following is a major factor that influence price increases?

A) Cost inflation

B) Surplus of raw materials

C) Government intervention

D) Foreign competition

E) B and C

Competitors are most likely to react to a price change when _____.

A) The number of firms involved is small

B) The purchase is uniform

C) The buyers are not well informed

D) A and B

E) all of the above

A competitor is likely to interpret your firm's decision to cut prices in many ways, including all of the following EXCEPT as _____.

A) An attempt to take more market share

B) An effort it to use excess capacity

C) A personal decision due to management's personality

D) An attempt to cut prices industry-wide

E) A and D

When a competitor cuts its price, a company is most likely to decide to _____ if it believes it will not lose much market share or would lose too much profit by cutting its own price.

A) Reduce its production costs

B) Reduce its marketing costs

C) Maintain its current prices and profit margin

D) Increase its marketing budget to raise the perceived value of the product

E) Increase its production costs to improve the quality of the product

When faced with a competitor who has cut its product's price, which of the following is typically the most efficient way for a company to maintain its own price but raise the perceived value of its offer?

A) Improving the quality of the product

B) Introducing a higher-priced premium brand

C) Altering the company's marketing communications

D) Bundling the offer with add-ons

E) Distributing the product through less costly channels

Which of the following is NOT on an effective action that a company can take to combat a competitor's price cut on a product?

A) Reduce price

B) Raise perceived value

C) Improve quality and increase price

D) Bundle products together

E) Launch a low-price "fighting brand"

When a firm improves the quality and increases the price of a product in reaction to a competitor making a price reduction, the firm in essence is _____.

A) Moving its brand into a less competitive position

B) Adversely positioning its product

C) Moving its brand into a higher price-value position

D) Creating a "fighting brand"

E) Changing its target market

A company would most likely consider launching a low-price "fighting brand" in response to a competitor reducing prices if _____.

A) The market segment being lost is price sensitive

B) The market segment being lost is not price sensitive

C) The market segment being lost responds to arguments of higher quality

D) The market segment being lost no longer demands the product

E) The market segment being lost has shifted culturally

Price-fixing, predatory pricing, retail price maintenance, and deceptive pricing are examples of _____.

A) Common pricing policies

B) Major public policy issues in pricing

C) Common pricing strategies

D) Pricing policies used mostly in the wholesale sector

E) Pricing used mostly in the retail sector

When sellers set prices after talking to competitors and engaging in collusion, they are involved in _____.

A) Predatory pricing

B) Discriminatory pricing

C) Price-fixing

D) Skimming pricing

E) Penetration pricing

Price discrimination is legal under which of the following conditions?

A) When a manufacturer and reseller have agreed upon a specified retail price for a product

B) When a manufacturer sells to retailers in different markets

C) When a seller can prove its costs are different when selling to different retailers

D) When a seller advertises prices that are not actually available to consumers

E) When a seller has not communicated with competitors before announcing prices

Price discrimination may be used to match competition as long as the strategy is temporary, localized, and _____.

A) defensive

B) Offensive

C) Published

D) private

E) Used in all channels

Among the following, a market-penetration strategy will likely be most effective with _____.

A) Pharmaceuticals

B) An electronic device for which R&D must be recouped

C) Convenience items for which there is much competition

D) Any specialty item

E) None of the above

When Pepsi came out with Pepsi Blue and priced it at half price to attract buyers they were using, Pepsi was using _____.

A) market-skimming pricing

B) market-penetration pricing

C) new-product pricing

D) Discount pricing

E) Value-added pricing

Mach 3 razor blades must be used in the Mach 3 razor. Which type of pricing is most likely used?

A) product line pricing

B) optional-product pricing

C) captive-product pricing

D) By-product pricing

E) Product bundle pricing

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