



## SYLLABUS

Class: - B.B.A. IV Semester

Subject: - Management Accounting

UNIT – I	<b>Basics of Management Accounting:</b> Meaning and definition of Management Accounting, Evolution of Management Accounting, Nature and Scope of Management Accounting, Relationship of Management Accounting with Other Branches of Accounting and Other Disciplines of Studies.
UNIT – II	<b>Budgetary Control:</b> Meaning of Budget, Budgetary Control and its use as a management tool, Functions of Budgets, Difference between Budgets and Forecasts, Planning Process and Budgetary Process, Stages in Budget Process, Various Types of Budgets, Zero Based Budgeting, Activity Based Budgeting, Fixed and Flexible Budgets, Behavioral Aspects in Budgeting
UNIT – III	<b>Standard Costing;</b> Introduction to Standard Costing, Cost Standards and their types, Standard Costing and Budgetary Control, Operation of Standard Costing System, Establishing Standard Costs, Analysis, Interpretation, Presentation and Disposal of variances
UNIT – IV	<b>Marginal Costing as a Tool for Decision Making;</b> Make or Buy Decision, Change in product Mix, Pricing Decisions, Exploring a New Market, Shut-down Decisions



**UNIT-I**

**MANAGEMENT ACCOUNTING: NATURE AND SCOPE**

**INTRODUCTION**

Management accounting can be viewed as Management-oriented Accounting. Basically it is the study of managerial aspect of financial accounting, "accounting in relation to management function". It shows how the accounting function can be re-oriented so as to fit it within the framework of management activity. The primary task of management accounting is, therefore, to redesign the entire accounting system so that it may serve the operational needs of the firm. It furnishes definite accounting information, past, present or future, which may be used as a basis for management action. The financial data are so devised and systematically developed that they become a unique tool for management decision.

**DEFINITIONS OF MANAGEMENT ACCOUNTING**

Management Accounting is concerned with the accumulation, classification and interpretation of information that assists individual executives to fulfill organizational objectives.

The Report of the Anglo-American Council of Productivity (1950) has also given a definition of management accounting, which has been widely accepted. According to it, "Management accounting is the presentation of accounting information in such a way as to assist the management in creation of policy and the day to day operation of an undertaking".

**NATURE OF MANAGEMENT ACCOUNTING**

The term management accounting is composed of 'management' and 'accounting'. The word 'management' here does not signify only the top management but the entire personnel charged with the authority and responsibility of operating an enterprise. The task of management accounting involves furnishing accounting information to the management, which may base its decisions on it.

It is through management accounting that the management gets the tools for an analysis of its administrative action and can lay suitable stress on the possible alternatives in terms of costs, prices and profits, etc. but it should be understood that the accounting information supplied to management is not the sole basis for managerial decisions. Along with the accounting information, management takes into consideration or weighs other factors concerning actual execution. For reaching a final decision, management has to apply its common sense, foresight, knowledge and experience of operating an enterprise, in addition to the information that is already has.

Management accounting has no set principles such as the double entry system of bookkeeping. In place of generally accepted accounting principles, the philosophy of cost benefit analysis is the core guide of this discipline. It says that no accounting system is good or bad but it can be considered desirable so long as it brings incremental benefits in excess of its incremental costs.

**FUNCTIONS OF MANAGEMENT ACCOUNTING**

The basic function of management accounting is to assist the management in performing its functions effectively. The functions of the management are planning, organizing, directing and controlling. Management accounting helps in the performance of each of these functions in the following ways:

**(i) Provides data:** Management accounting serves as a vital source of data for management planning.

The accounts and documents are a repository of a vast quantity of data about the past progress of the enterprise, which are a must for making forecasts for the future.

**(ii) Modifies data:** The accounting data required for managerial decisions is properly compiled and classified. For example, purchase figures for different months may be classified to know total purchases made during each period product-wise, supplier-wise and territory-wise.

**(iii) Analyses and interprets data:** The accounting data is analyzed meaningfully for effective planning and decision-making. For this purpose the data is presented in a comparative form. Ratios are calculated and likely trends are projected.



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**(iv) Serves as a means of communicating:** Management accounting provides a means of communicating management plans upward, downward and outward through the organization.

Initially, it means identifying the feasibility and consistency of the various segments of the plan. At later stages it keeps all parties informed about the plans that have been agreed upon and their roles in these plans.

**(v) Facilitates control:** Management accounting helps in translating given objectives and strategy into specified goals for attainment by a specified time and secures effective accomplishment of these goals in an efficient manner. All this is made possible through budgetary control and standard costing which is an integral part of management accounting.

**(vi) Uses also qualitative information:** Management accounting does not restrict itself to financial data for helping the management in decision making but also uses such information which may not be capable of being measured in monetary terms. Such information may be collected from special surveys, statistical compilations, engineering records, etc.

### **SCOPE OF MANAGEMENT ACCOUNTING**

Management accounting is concerned with presentation of accounting information in the most useful way for the management. Its scope is, therefore, quite vast and includes within its fold almost all aspects of business operations. However, the following areas can rightly be identified as falling within the ambit of management accounting:

**(i) Financial Accounting:** Management accounting is mainly concerned with the rearrangement of the information provided by financial accounting. Hence, management cannot obtain full control and coordination of operations without a properly designed financial accounting system.

**(ii) Cost Accounting:** Standard costing, marginal costing, opportunity cost analysis, differential costing and other cost techniques play a useful role in operation and control of the business undertaking.

**(iii) Revaluation Accounting:** This is concerned with ensuring that capital is maintained intact in real terms and profit is calculated with this fact in mind.

**(iv) Budgetary Control:** This includes framing of budgets, comparison of actual performance with the budgeted performance, computation of variances, finding of their causes, etc.

**(v) Inventory Control:** It includes control over inventory from the time it is acquired till its final disposal.

**(vi) Statistical Methods:** Graphs, charts, pictorial presentation, index numbers and other statistical methods make the information more impressive and intelligible.

**(vii) Interim Reporting:** This includes preparation of monthly, quarterly, half-yearly income statements and the related reports, cash flow and funds flow statements, scrap reports, etc.

**(viii) Taxation:** This includes computation of income in accordance with the tax laws, filing of returns and making tax payments.

**(ix) Office Services:** This includes maintenance of proper data processing and other office management services, reporting on best use of mechanical and electronic devices.

**(x) Internal Audit:** Development of a suitable internal audit system for internal control.

### **THE MANAGEMENT ACCOUNTANT**

The Management Accountant has a very significant role to perform in the installation, development and functioning of an efficient and effective management information system. He designs the framework of the financial and cost control reports that provide each management level with the most useful data at the most appropriate time. He educates executives in the need for control information and ways of using it. This is because his position is unique with respect to information about the organization.

Apart from top management no one in the organization perhaps knows more about the various functions of the organization than him. He is, therefore, sometimes described as the Chief Intelligence Officer of the top management.

Mr. P.L. Tandon has explained beautifully the position of the management accountant in the following words.



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"The management accountant is exactly like the spokes in a wheel, connecting the rim of the wheel and the hub receiving the information. He processes the information and then returns the processed information back to where it came from".

Dr. Don barker sees a very bright future for the management accountants. According to him, "Management Accountants will be presented with many opportunities for innovative actions in the global economic environment. In addition to their role of providing accurate, timely and relevant information, management accountants will be expected to participate as business consultants and partners with management in the strategic planning process".

### **FUNCTIONS OF MANAGEMENT ACCOUNTANT**

It is the duty of the management accountant to keep all levels of management informed of their real position. He has, therefore, varied functions to perform. His important functions can be summarized as follows:

**(i) Planning:** He has to establish, coordinate and administer as an integral part of management, an adequate plan for the control of the operations. Such a plan would include profit planning, programmes of capital investment and financing, sales forecasts, expenses budgets and cost standards.

**(ii) Controlling:** He has to compare actual performance with operating plans and standards and to report and interpret the results of operations to all levels of management and the owners of the business. This is done through the compilation of appropriate accounting and statistical records and reports.

**(iii) Coordinating:** He consults all segments of management responsible for policy or action. Such consultation might concern any phase of the operation of the business having to do with attainment of objectives and the effectiveness of the organizational structures and policies.

**(iv) Other functions:**

He administers tax policies and procedures.

He supervises and coordinates the preparation of reports to governmental agencies.

He ensures fiscal protection for the assets of the business through adequate internal control and proper insurance coverage.

He carries out continuous appraisal economic and social forces and the government influences, and interprets their effect on the business.

### **MANAGEMENT ACCOUNTING AND FINANCIAL ACCOUNTING:**

Financial accounting and management accounting are closely interrelated since management accounting is to a large extent rearrangement of the data provided by financial accounting. Moreover, all accounting is financial in the sense that all accounting systems are in monetary terms and management is responsible for the contents of the financial accounting statements. In spite of such a close relationship between the two, there are certain fundamental differences. These differences can be laid down as follows:

**(i) Objectives:** Financial accounting is designed to supply information in the form of profit and loss account and balance sheet to external parties like shareholders, creditors, banks, investors and Government. Information is supplied periodically and is usually of such type in which management is not much interested. Management Accounting is designed principally for providing accounting information for internal

**(ii) Analyzing performance:** Financial accounting portrays the position of business as a whole. The financial statements like income statement and balance sheet report on overall performance or status of the business. On the other hand, management accounting directs its attention to the various divisions, departments of the business and reports about the profitability, performance, etc., of each of them. Financial accounting deals with the aggregates and, therefore, cannot reveal what part of the management action is going wrong and why. Management accounting provides detailed analytical data for these purposes.



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**(iii) Data used:** Financial accounting is concerned with the monetary record of past events. It is a post-mortem analysis of past activity and, therefore, out the date for management action. Management accounting is accounting for future and, therefore, it supplies data both for present and future duly analyzed in detail in the 'management language' so that it becomes a base for management action.

**(iv) Monetary measurement:** In financial accounting only such economic events find place, which can be described in money. However, the management is equally interested in non-monetary economic events, viz., technical innovations, personnel in the organization, changes in the value of money, etc. These events affect management's decision and, therefore, management accounting cannot afford to ignore them. For example, change in the value of money may not find a place in financial accounting on account of "going concern concept". But while affecting an insurance policy on an asset or providing for replacement of an asset, the management will have to take into account this factor.

**(v) Periodicity of reporting:** The period of reporting is much longer in financial accounting as compared to management accounting. The Income Statement and the Balance Sheet are usually prepared yearly or in some cases half-yearly. Management requires information at frequent intervals and, therefore, financial accounting fails to cater to the needs of the management. In management accounting there is more emphasis on furnishing information quickly and at comparatively short intervals as per the requirements of the management.

**(vi) Precision:** There is less emphasis on precision in case of management accounting as compared to financial accounting since the information is meant for internal consumption.

**(vii) Nature:** Financial accounting is more objective while management accounting is more subjective. This is because management accounting is fundamentally based on judgement rather than on measurement.

**(viii) Legal compulsion:** Financial accounting has more or less become compulsory for every business on account of the legal provisions of one or the other Act. However, a business is free to install or not to install system of management accounting.

The above points of difference between Financial Accounting and Management Accounting prove that Management Accounting has flexible approach as compared to rigid approach in the case of Financial Accounting. In brief, financial accounting simply shows how the business has moved in the past while management accounting shows how the business has to move in the future.

#### **COST ACCOUNTING AND MANAGEMENT ACCOUNTING:**

Cost accounting is the process of accounting for costs. It embraces the accounting procedures relating to recording of all income and expenditure and the preparation of periodical statements and reports with the object of ascertaining and controlling costs.

It is, thus, the formal mechanism by means of which the costs of products or services are ascertained and controlled. On the other hand, management accounting involves collecting, analyzing, interpreting and presenting all accounting information, which is useful to the management. It is closely associated with management control, which comprises planning, executing, measuring and evaluating the performance of an organization. Thus, management accounting draws heavily on cost data and other information derived from cost accounting. Today cost accounting is generally distinguishable from the so-called management accounting or internal accounting because it serves multiple purposes. However, management accounting can be distinguished from cost accounting in one important respect.

Management accounting has a wider scope as compared to cost accounting. Cost accounting deals primarily with cost data while management accounting involves the considerations of both cost and revenue.

Management accounting is an all inclusive accounting information system, which covers financial accounting, cost accounting, and all aspects of financial management. But it is not a substitute for other accounting functions. It involves a continuous process of reporting cost, financial and other relevant data in an analytical and informative way to management. We should not be very much concerned with boundaries of cost accounting and management accounting since they are complementary in nature. In the absence of a suitable system of cost accounting, management accountant will not be in a position to



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have detailed cost information and his function is bound to lose significance. On the other hand, the management accountant cannot effectively use the cost data unless it has been reported to him in a meaningful and informative form.

### **LIMITATIONS OF MANAGEMENT ACCOUNTING**

Management accounting, being comparatively a new discipline, suffers from certain limitations, which limit its effectiveness. These limitations are as follows:

**1. Limitations of basic records:** Management accounting derives its information from financial accounting, cost accounting and other records. The strength and weakness of the management accounting, therefore, depends upon the strength and weakness of these basic records. In other words, their limitations are also the limitations of management accounting.

**2. Persistent efforts.** The conclusions drawn by the management accountant are not executed automatically. He has to convince people at all levels. In other words, he must be an efficient salesman in selling his ideas.

**3. Management accounting is only a tool:** Management accounting cannot replace the management. Management accountant is only an adviser to the management. The decision regarding implementing his advice is to be taken by the management. There is always a temptation to take an easy course of arriving at decision by intuition rather than going by the advice of the management accountant.

**4. Wide scope:** Management accounting has a very wide scope incorporating many disciplines. It considers both monetary as well as non-monetary factors. This all brings inexactness and subjectivity in the conclusions obtained through it.

**5. Top-heavy structure:** The installation of management accounting system requires heavy costs on account of an elaborate organization and numerous rules and regulations. It can, therefore, be adopted only by big concerns.

**6. Opposition to change:** Management accounting demands a break away from traditional accounting practices. It calls for a rearrangement of the personnel and their activities, which is generally not like by the people involved.

**7. Evolutionary stage:** Management accounting is still in its initial stage.

It has, therefore, the same impediments as a new discipline will have, e.g., fluidity of concepts, raw techniques and imperfect analytical tools. This all creates doubt about the very utility of management accounting.



**UNIT II**

**BUDGETARY CONTROL**

**Definition of Budget:**

The Chartered Institute of Management Accountants, England, defines a 'budget' as under:

"A financial and/or quantitative statement, prepared and approved prior to define period of time, of the policy to be perused during that period for the purpose of attaining a given objective."

According to Brown and Howard of Management Accountant "a budget is a predetermined statement of managerial policy during the given period which provides a standard for comparison with the results actually achieved."

An analysis of the above said definitions reveal the following essentials of a budget:

1. It is prepared for a definite future period.
2. It is a statement prepared prior to a defined period of time.
3. The budget is monetary and/or quantitative statement of policy.
4. The budget is a predetermined statement and its purpose is to attain a given objective.

A budget, therefore, be taken as a document which is closely related to both the managerial as well as accounting functions of an organization.

**Forecast Vs Budget:**

Forecast is mainly concerned with an assessment of probable future events. Budget is a planned result that an enterprise aims to attain. Forecasting precedes preparation of a budget as it is an important part of the budgeting process. It is said that the budgetary process is more a test of forecasting skill than anything else. A budget is both a mechanism for profit planning and technique of operating cost control. In order to establish a budget it is essential to forecast various important variables like sales, selling prices, availability of materials, prices of materials, wage rates etc. both budgets and forecasts refer to the anticipated actions and events. But still there are wide differences between budgets and forecasts as given below:

<b>Forecast</b>	<b>Budget</b>
<ol style="list-style-type: none"><li>1. Forecasts is mainly concerned with anticipated or probable events.</li><li>2. Forecasts may cover for longer period or years.</li><li>3. Forecast is only a tentative estimate.</li><li>4. Forecast results in planning.</li><li>5. The function of forecast ends with the forecast of likely events.</li><li>6. Forecast usually covers a specific business function.</li><li>7. Forecasting does not act as a tool of controlling measurement.</li></ol>	<ol style="list-style-type: none"><li>1. Budget is related to planned events.</li><li>2. Budget is planned or prepared for a shorter period.</li><li>3. Budget is a target fixed for a period.</li><li>4. Result of planning is budgeting.</li><li>5. The process of budget starts where forecast ends and converts it into a budget.</li><li>6. Budget is prepared for the business as a whole.</li><li>7. Purpose of budget is not merely a planning device but also a controlling tool.</li></ol>

**Budgetary control:**

Budgetary control is the process of establishment of budgets relating to various activities and comparing the budgeted figures with the actual performance for arriving at deviations, if any. Accordingly, there cannot be budgetary control without budgets. Budgetary control is a system which uses budgets as a means of planning and controlling.



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According to I.C.M.A. England Budgetary control is defined by Terminology as “the establishment of budgets relating to the responsibilities of executives to the requirements of a policy and the continuous comparison of actual with the budgeted results, either to secure by individual actions the objectives of that policy or to provide a basis for its revision”.

Brown and Howard defines budgetary control is “a system of controlling costs which includes the preparation of budgets, co-ordinating the department and establishing responsibilities, comparing actual performance with the budgeted and acting upon results to achieve maximum profitability.”

The above definitions reveal the following essentials of budgetary control:

1. Establishment of objectives for each function and section of the organization.
2. Comparison of actual performance with budget.
3. Ascertainment of the causes for such deviations of actual from the budgeted performance.
4. Taking suitable corrective action from different available alternatives to achieve the desired objectives.

#### **Objectives of Budgetary Control:**

Budgetary control is planning to assist the management for policy formulation, planning, controlling and co-ordinating the general objectives of budgetary control and can be stated in the following ways:

**1. Planning:** A budget is a plan of action. Budgeting ensures a detailed plan of action for a business over a period of time.

**2. Co-ordination:** Budgetary control co-ordinates the various activities of the entity or organization and secure co-operation of all concerned towards the common goal.

**3. Control:** Control is necessary to ensure that plans and objectives are being achieved.

Control follows planning and co-ordination. No control performance is possible without predetermined standards. Thus, budgetary control makes control possible by continuous measures against predetermined targets. If there is any variation between the budgeted performance and the actual performance the same is subject to analysis and corrective action.

#### **Scope and Techniques of Budgetary Control:**

##### **Scope:**

1. Budgets are prepared for different functions of business such as production, sales etc. Actual results are compared with the budgets and control is exercised.
2. Budgets have a wide range of coverage of the entire organization. Each operation or process is divided into number of elements and standards are set for each such element.
3. Budgetary control is concerned with origin of expenditure at functional levels.
4. Budget is a projection of financial accounts whereas standard costing projects the cost accounts.

##### **Technique:**

1. Budgetary control is exercised by putting budgets and actual side by side. Variances are not normally revealed in the accounts.
2. Budgetary control system can be operated in parts. For example, advertisement budgets, research and development budgets, etc.
3. Budgetary control of expenses is broad in nature.

#### **Requisites for Effective Budgetary Control:**

The following are the requisites for effective budgetary control:

1. Clear cut objectives and goals should be well defined.
2. The ultimate objective of realising maximum benefits should always be kept uppermost.
3. There should be a budget manual which contains all details regarding plan and procedures for its execution. It should also specify the time table for budget preparation for approval, details about responsibility, cost centers etc.
4. Budget committee should be set up for budget preparation and efficient of the plan.
5. A budget should always be related to a specified time period.



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6. Support of top management is necessary in order to get the full support and co- operation of the system of budgetary control.
7. To make budgetary control successful, there should be a proper delegation of authority and responsibility.
8. Adequate accounting system is essential to make the budgeting successful.
9. The employees should be properly educated about the benefits of budgeting system.
10. The budgeting system should not cost more to operate than it is worth.
11. Key factor or limiting factor, if any, should consider before preparation of budget.
12. For budgetary control to be effective, proper periodic reporting system should be introduced.

**Advantages of Budgetary Control:**

The advantages of budgetary control may be summarized as follows:

1. It facilitates reduction of cost.
2. Budgetary control guides the management in planning and formulation of policies.
3. Budgetary control facilitates effective co-ordination of activities of the various departments and functions by setting their limits and goals.
4. It ensures maximization of profits through cost control and optimum utilization of resources.
5. It evaluates for the continuous review of performance of different budget centres.
6. It helps to the management efficient and economic production control.
7. It facilitates corrective actions, whenever there are inefficiencies and weaknesses comparing actual performance with budget.
8. It guides management in research and development.

**Limitations of Budgetary Control:**

From the above it is clear that the budgetary control is an effective tool for management control. However, it has certain important limitations which are identified below:

1. The budget plan is based on estimates and forecasting. Forecasting cannot be considered to be an exact science. If the budget plans are made on the basis of inaccurate forecasts then the budget programme may not be accurate and ineffective.
2. For reason of uncertainty about future, and changing circumstances which may develop later on, budget may prove short or excess of actual requirements.
3. Effective implementation of budgetary control depends upon willingness, co- operation and understanding among people reasonable for execution. Lack of co- operation leads to inefficient performance.
4. The system does not substitute for management. It is like a management tool.
5. Budgeting may be cumbersome and time consuming process.

**Types of Budgets**

As budgets serve different purposes, different types of budgets have been developed. The following are the different classification of budgets developed on the basis of time, functions, and flexibility or capacity.

**(A) Classification on the basis of Time:**

1. Long-term budgets
2. Short-term budgets
3. Current budgets

**(B) Classification according to functions:**

1. Functional or subsidiary budgets
2. Master budgets

**(C) Classification on the basis of capacity:**

1. Fixed budgets.
2. Flexible budgets



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**(a) Classification on the basis of time:**

**1. Long-term budgets:** Long-term budgets are prepared for a longer period varies between five to ten years. It is usually developed by the top level management. These budgets summarise the general plan of operations and its expected consequences. Long-term budgets are prepared for important activities like composition of its capital expenditure, new product development and research, long-term finance etc.

**2. Short-term budgets:** These budgets are usually prepared for a period of one year. Sometimes they may be prepared for shorter period as for quarterly or half yearly. The scope of budgeting activity may vary considerably among different organization.

**3. Current budgets:** Current budgets are prepared for the current operations of the business. The planning period of a budget generally in months or weeks. As per ICMA London, "Current budget is a budget which is established for use over a short period of time and related to current conditions."

**(b) Classification on the basis of function:**

**1. Functional budget:** The functional budget is one which relates to any of the functions of an organization. The number of functional budgets depends upon the size and nature of business. The following are the commonly used:

- (i) Sales budget
- (ii) Purchase budget
- (iii) Production budget
- (iv) Selling and distribution cost budget
- (v) Labour cost budget
- (vi) Cash budget
- (vii) Capital expenditure budget

**2. Master budget:** The master budget is a summary budget. This budget encompasses all the functional activities into one harmonious unit. The ICMA England defines a Master Budget as the summary budget incorporating its functional budgets, which is finally approved, adopted and employed.

**(c) Classification on the basis of capacity:**

**1. Fixed budget:** A fixed budget is designed to remain unchanged irrespective of the level of activity actually attained.

**2. Flexible budget:** A flexible budget is a budget which is designed to change in accordance with the various level of activity actually attained. The flexible budget also called as Variable Budget or Sliding Scale Budget, takes both fixed, variable and semi fixed manufacturing costs into account.

**Control Ratios:**

Ratios are used by the management to determine whether performance of its activities is going on as per estimates or not. If the ratio is 100% or more, the performance is considered as unsatisfactory. The following are the ratios generally calculated for performance evaluation.

**1. Capacity ratio:** This ratio indicates the extent to which budgeted hours of activity is actually utilised.

$$\text{Capacity Ratio} = \frac{\text{Actual hours worked production}}{\text{Budget hours}} \times 100$$

**2. Activity ratio:** This ratio is used to measure the level of activity attained during the budget period.

$$\text{Activity ratio} = \frac{\text{Standard hours for actual production}}{\text{Budgeted hours}} \times 100$$

**3. Efficiency ratio:** This ratio shows the level of efficiency attained during the budget period.

$$\text{Efficiency ratio} = \frac{\text{Standard hours for actual production}}{\text{Actual horus worked}} \times 100$$



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**4. Calendar ratio:** This ratio is used to measure the proportion of actual working days to budgeted working days in a budget period.

$$\text{Calendar ratio} = \frac{\text{Numbr of actual working days in a period}}{\text{Budgeted working days for the period}} \times 100$$

**Sales Budget:**

Sales budget is one of the important functional budgets. Sales estimate is the commencement of budgeting may be made in quantitative terms. Sales budget is primarily concerned with forecasting of what products will be sold in what quantities and at what prices during the budget period. Sales budget is prepared by the sales executives taking into account number of relevant and influencing factors such as: Analysis of past sales, key factors, market conditions, production capacity, government restrictions, competitor's strength and weakness, advertisement, publicity and sales promotion, pricing policy, consumer behaviour, nature of business, types of product, company objectives, salesmen's report, marketing research's reports, and product life cycle.

**Production Budget:**

Production budget is usually prepared on the basis of sales budget. But it also takes into account the stock levels desired to be maintained. The estimated output of business firm during a budget period will be forecast in production budget. The production budget determines the level of activity of the produce business and facilities planning of production so as to maximum efficiency. The production budget is prepared by the chief executives of the production department. While preparing the production budget, the factors like estimated sales, availability of raw materials, plant capacity, availability of labour, budgeted stock requirements etc. are carefully considered.

**Cost of Production Budget:**

After preparation of production budget, this budget is prepared. Production cost budgets show the cost of the production determined in the production budget. Cost of production budget is grouped in to material cost budget, labour cost budget and overhead cost budget. Because it break up the cost of each product into three main elements material, labour and overheads. Overheads may be further subdivided in to fixed, variable and semi-fixed overheads. Therefore separate budgets required for each item.

**Material Purchase Budget:**

The different levels of material stock are based on planned out. Once the production budget is prepared, it is necessary to consider the requirement of materials to carry out the production activities. Material purchase budget is concerned with purchase and requirement of direct materials to be made during the budget period. While preparing the materials purchase budget, the following factors to be considered carefully:

1. Estimated sales and production.
2. Requirement of materials during budget period.
3. Expected changes in the prices of raw materials.
4. Different stock levels, EOQ etc.
5. Availability of raw materials, i.e., seasonal or otherwise.
6. Availability of financial resources.
7. Price trend in the market.
8. Company's stock policy etc.

**Cash Budget:**

This budget represents the anticipated receipts and payment of cash during the budget period. The cash budget also called as Functional Budget. Cash budget is the most important of the entire functional budget because, cash is required for the purpose to meeting its current cash obligations. If at any time, a



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concern fails to meet its obligations, it will be technically insolvent. Therefore, this budget is prepared on the basis of detailed cash receipts and cash payments. The estimated cash receipts include: cash sales, credit sales, collection from sundry debtors, bills receivable, interest received, income from sale of investment, commission received, dividend received and income from non-trading operations etc.

The estimated cash payments include the following:

1. Cash purchase
2. Payment to creditors
3. Payment of wages
4. Payments relate to production expenses
5. Payments relate to office and administrative expenses
6. Payments relate to selling and distribution expenses
7. Any other payments relate to revenue and capital expenditure
8. Income tax payable, dividend payable etc.

### Master Budget:

When the functional budgets have been completed, the budget committee will prepare a master budget for the target of the concern. Accordingly a budget which is prepared incorporating the summaries of all functional budgets. It comprises of budgeted profit and loss account, budgeted balance sheet, budgeted production, sales and costs. The ICMA England defines a Master Budget as 'the summary budget incorporating its functional budgets, which is finally approved, adopted and employed'. The master budget represents the activities of a business during a profit plan. This budget is also helpful in coordinating activities of various functional departments.

### Fixed Budget:

A budget is drawn from a particular level of activity is called fixed budget. According to ICWA London 'Fixed budget is a budget which is designed to remain unchanged irrespective of the level of activity actually attained.' Fixed budget is usually prepared before the beginning of the financial year. This type of budget is not going to high light the cost variance due to the difference in the levels of activity. Fixed budgets are suitable under static conditions.

### Flexible

Flexible budget is also called variable or sliding scale budget, 'takes both the fixed and manufacturing costs into account. Flexible budget is the opposite of static budget showing the expected cost at a single level of activity. According to ICMA, England defined Flexible Budget is a budget which is designed to change in accordance with the level of activity actually attained.'

According to the principles that guide the preparation of the flexible budget a series of fixed budgets are drawn for different levels of activity. A flexible budget often shows the budgeted expenses against each item of cost corresponding to the different levels

of activity. This budget has come into use for solving the problems caused by the application of the fixed budget.

### Budget:

### Advantages of flexible budget:

1. In flexible budget, all possible volume of output or level of activity can be covered.
2. Overhead costs are analysed into fixed variable and semi-variable costs.
3. Expenditure can be forecasted at different levels of activity.
4. It facilitates at all times related factor can be compared, which essential for intelligent decision are making
5. A flexible budget can be prepared with standard costing or without standard costing depending upon what the company opts for.
6. A flexible budget facilitates ascertainment of costs at different levels of activity, price fixation, placing tenders and quotations.



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7. It helps in assessing the performance of all departmental heads as the same can be judged by terms of the level of activity attained by the business.

<b>Fixed budget</b>	<b>Flexible budget</b>
<ol style="list-style-type: none"><li>1. It does not change with the volume of activity</li><li>2. All costs are related to one level of activity only.</li><li>3. If budget and actual activity levels vary, cost ascertainment does not provide a correct picture.</li><li>4. Ascertainment of costs is not possible in fixed cost.</li><li>5. It has a limited application for cost control.</li><li>6. It is rigid budget and drawn on the assumption that conditions would remain constant.</li><li>7. Comparison of actual and budgeted performance cannot be done correctly because the volume of production differs.</li><li>8. Costs are not classified according to their variability, i.e., fixed, variable and semi-variable.</li></ol>	<ol style="list-style-type: none"><li>1. It can be recast on the basis of volume of cost.</li><li>2. Costs are analysed by behaviour and variable costs are allowed as per activity attained.</li><li>3. Flexible budgeting helps in fixation of selling price at different levels of activity.</li><li>4. Costs can be easily ascertained at different levels of activity.</li><li>5. It has more application and can be used as a tool for effective cost control.</li><li>6. It is designed to change according to changed conditions.</li><li>7. Comparisons are realistic according to the change in the level of activity.</li><li>8. Costs are classified according to the nature of their variability.</li></ol>

### **Zero Base Budgeting (ZBB):**

Zero base budgeting is a new technique of budgeting. It is designed to meet the needs of the management in order to ensure the operational efficiency and effective utilization of the allocated resources of a concern. This technique was originally developed by Peter A. Phyhrr, Manager of Texas Instrument during 1969. This concept is widely used in USA for controlling their state expenditure when Mr. Jimmy Carter was the president of the USA. At present the technique has for its global recognition for many countries have implemented in real terms.

According to Peter A. Phyhrr ZBB is defined as an "Operative planning and budgeting process which requires each manager to justify his entire budget in detail from Scratch (hence zero base) and shifts the burden of proof to each manager to justify why we should spend any money at all".

In zero-base budgeting, a manager at all levels, have to justify the importance of activity and to allocate the resources on priority basis.

### **Important aspect of ZBB:**

Zero-based budgeting involves the following important aspects:

1. It emphasises on all requisites of budgets.
2. Evaluation on the basis of decision packages and systematic analysis, i.e., in view of cost benefit analysis.
3. Planning the activities, promotes operational efficiency and monitors the performance to achieve the objectives.

### **Steps involved in ZBB:**

The following are the steps involved in zero base budgeting:

1. No previous year performance of inefficiencies is to be taken as adjustments in subsequent year.
2. Identification of activities in decision packages.
3. Determination of budgeting objectives to be attained.
4. Extent to which zero base budgeting is to be applied.



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5. Evaluation of current and proposed expenditure and placing them in order of priority.
6. Assignment of task and allotment of sources on the basis of cost benefit comparison.
7. Review process of each activity examined afresh.
8. Weightage should be given for alternative course of actions.

**Advantages of ZBB:**

1. Utilization of resources at a maximum level.
2. It serves as a tool of management in formulating production planning.
3. It facilitates effective cost control.
4. It helps to identify the uneconomical activities.
5. It ensures the proper allocation of scarce resources on priority basis.
6. It helps to measure the operational inefficiencies and to take the corrective actions.
7. It ensures the principles of management by objectives.
8. It facilitates co-operation and co-ordination among all levels of management.
9. It ensures each activity is thoroughly examined on the basis of cost benefit analysis.

**Performance Budgeting:**

Performance budget has been defined as a 'budget based on functions, activities and projects.'

Performance budgeting may be described as 'the budgeting system in which input costs are related to the performance, i.e., end results.'

According to National Institute of Bank Management, Performance budgeting is, "the process of analyzing, identifying, simplifying and crystallizing specific performance objectives of a job to be achieved over a period, in the framework of the organizational objectives, the purpose and objectives of the job."

**From the above definitions, it is clear that budgetary performance involves the following:**

1. Establishment of well defined centres of responsibilities:
2. Establishment for each responsibility centre- a programme of target performance is in physical units.
3. Forecasting the amount of expenditure required to meet the physical plan laid down.
4. Comparison of the actual performance with the budgets, i.e., evaluation of performance.
5. Undertaking periodic review of the programme with a view to make modifications as required.



**UNIT III**

**STANDARD COSTING**

**MEANING OF STANDARD COST AND STANDARD COSTING:**

The word 'standard' means a benchmark or gauge. The 'standard cost' is a predetermined cost which determines in advance what each product or service should cost under given circumstances. Backer and Jacobsen define "Standard cost is the amount the firm thinks a product or the operation of a process for a period of time should cost, based upon certain assumed conditions of efficiency, economic conditions and other factors". Chartered Institute of Management Accountants, London defines standard cost as "a predetermined cost which is calculated from management's standards of efficient operation and the relevant necessary expenditure". They are the predetermined costs based on technical estimate of material, labour and overhead for a selected period of time and for a prescribed set of working conditions.

The technique of using standard costs for the purposes of cost control is known as standard costing. Brown and Howard define "standard costing is a technique of cost accounting which compares the standard cost of each product or service with actual cost to determine the efficiency of the operation so that any remedial action may be taken immediately". The terminology of Cost Accountancy defines standard costing as "the preparation and use of standard costs, their comparison with actual costs, and the analysis of variance to their causes, and points of incidence". The London Institute of Cost and Works Accountants define it as "An estimate cost, prepared in advance of production or supply correlating a technical specification of material and labour to the price and wage rates estimated for a selected period of time, with an addition of the apportionment of overheads expenses estimated for the same period within a prescribed set of working conditions". Further, it is a system of cost accounting, which is designed to find out how much should be the cost of a product under the existing conditions. The actual cost can be ascertained only when production is undertaken. The predetermined cost is compared to the actual cost and a variance between the two enables the management to take necessary corrective measures.

**STEPS INVOLVED IN STANDARD COSTING:**

The technique of standard costing involves the determination of cost before occurring.

The standard cost is based on technical information after considering the impact of current conditions. With the change in condition, the cost also can be modified so as to make it more realistic. The standard cost is divided into standards for materials, labour and overheads. The actual cost is recorded when incurred. The standard cost is compared to the actual cost. The difference between the two costs is known as variance. The variances are calculated element wise. The management can take corrective measures to set the things right on the basis of different variances.

The basic purpose of standard costing is to determine efficiency or inefficiency in manufacturing a particular product. This will be possible only if both standard costs and actual costs are given side by side. Though standard costing system will be useful for all types of commercial and industrial undertakings but it will be more useful in those undertakings where production is standardized. It will be of less use in job costing system because every job has different specifications and it will be difficult to determine standard costs for every job.

**STANDARD COSTING Vs. BUDGETARY CONTROL:**

In budgetary control, budgets are used as a means of planning and control. The targets of various segments are set in advance and actual performance is compared with predetermined objects. In this way management can assess the performance of different departments. On the other hand, standard costing also set standards and enables to determine efficiency on the basis of standards and actual performance.

Budgetary control is essential to determine standard costs, whereas, the standard costing system is necessary for planning budgets. In budgetary control the budgets are prepared for the concern as a



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whole whereas in standard costing the standards are set for producing a product or for providing a service. In standard costing, unit concept is used while in budgetary control total concept is used. The budgets are fixed on the basis of past records and future expectations. Standard costs are fixed on the basis of technical information. Standard costs are planned costs and these are expected in future. As far as scope is concerned, in case of budgetary control it is much wider than standard costing. Budgets are prepared for incomes, expenditures and other functions of the departments such as purchase, sale, production, finance and personnel department. In contrary, standards are set up for expenditures only and, therefore, for manufacturing departments standards are set for different elements of cost i.e., material, labour and overheads.

Further, in budgetary control, the targets of expenditure are set and these targets cannot be exceeded. In this system the emphasis is on keeping the expenditures within the budgeted figures. In standard costing the standards are set and an attempt is made to achieve these standards. The emphasis is on achieving the standards. Actual costs may be more than the standard costs and there can be no such thing in budgetary control. The budgetary control system can be applied partly or wholly. Budgets may be prepared for some departments and may not be prepared for all the departments. If a concern is interested in preparing production budget only, it is free to do so. Standard costing cannot be used partially; it will have to be used wholly. The standards will have to be set for all elements of cost. In fact, the systems operate in two different fields and both are complimentary in nature.

#### **STANDARD COSTS AND ESTIMATED COSTS:**

The standard costs and estimated costs both are used to determine price in advance. The purpose of both of them is to control cost. They follow the same accounting principles. Despite similarities, they differ in terms of objects and purpose. Estimated costs are based on historical accounting. It is an estimate of what the cost will be. It is a cost of guesswork or reasonable estimate for the costs in future. On the other hand standard costs are based on scientific analysis and engineering studies. Standard costing determines what the cost should be. Standard costs are used as a device for measuring efficiency. The standards are predetermined and a comparison of standards with actual costs enables to determine the efficiency of the concern. Estimated costs cannot be used to determine efficiency. It only determines the expected costs. An effort is made that estimated cost should almost be near to actual costs. The purpose of determining estimated costs is to find out selling price in advance to take a decision whether to produce or to make and also to prepare financial budgets. Estimated costs do not serve the purpose of cost control. On the other hand standard costs are helpful in cost control. The analysis of variance enables to take corrective measures, if necessary. Standard costs are not easily changed. The standards are set in such a way that small changes in conditions do not require a change in standards. Estimated costs are revised with the change in conditions. They are made more realistic by incorporating changes in prices. Standard costs are more static than estimated costs. Estimated costs are used by the concern using historical costing. Standard costing is used by those concerns which use standard costing system. Standard costing is a part of cost accounting process while estimated costs are statistical in nature and as such they may not become a part of accounting.

#### **ADVANTAGES OF STANDARD COSTING:**

Standard costing is not only helpful for cost control purposes but it is also useful in production planning and policy formulation. It derives following advantages:

**1. Measurement of Efficiency:** It is a tool for assessing the efficiency after comparing the actual costs with standard costs to enable the management to evaluate performance of various cost centres. By comparing actual costs with standard costs variances are determined and management is able to identify the place of inefficiencies. It can fix responsibility for deviation in performance. A regular check on various expenditures is also ensured by standard costing system. The standards are being constantly analyzed and an effort is made to improve efficiency. Whenever a variance occurs the reasons are studied and immediate corrective measures are undertaken.



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**2. Production and Price Policy Formulation:** It becomes easy to formulate production plans by taking into account standard costs. It is also supportive for finding prices of various products. In case, tenders are to be submitted or prices are to be quoted in advance then standard costing produces necessary data for price fixation.

**3. Reduction of Work:** In this system, management is supplied with useful information and necessary information is recorded and redundant data are avoided. The report presentation is simplified and only required information is presented in such a form that management is able to interpret the information easily and usefully. Therefore, standard costing reduces clerical work to a considerable extent

**4. Management by Exception:** Management by exception means that everybody is given a target to be achieved and management need not supervise each and everything. The responsibilities are fixed and everybody tries to achieve his targets. If the things are going as per targets then the management needs not to bother. Management devotes its time to other important things. So, management by exception is possible only when targets of work can be fixed. Standard costing enables the determination of targets.

#### **LIMITATIONS OF STANDARD COSTING:**

Besides all the above benefits derived from this system, it has a number of limitations, which are discussed as follows:

1. Standard costing cannot be used in those concerns where non-standard products are produced.
2. The time and motion study is required to be undertaken for the process of setting up standards. These studies require a lot of time and money. Further, the process of setting up standards is a difficult task, as it requires technical skill.
3. There are no inset circumstances to be considered for fixing standards. With the change in circumstances the standards are also to be revised. The revision of standard is a costly process.
4. This system is expensive and small concerns may not afford to bear the cost. For small concerns the utility from this system may be less than the cost involved in it.
5. The fixing of responsibility is not an easy task. The variances are to be classified into controllable and uncontrollable variances. The responsibility can be fixed only for controllable variances not in the case of uncontrollable.
6. The industries liable for frequent technological changes will not be suitable for standard costing system. The change in production process will require a revision of standard. A frequent revision of standard will be costly. So this system will not be useful for industries where methods and techniques of production are fast changing.

#### **PRELIMINARIES FOR ESTABLISHING STANDARD COSTING SYSTEM:**

The establishment of a standard costing system involves the following steps:

**1. Determination of Cost Centre:** A cost centre may be a department or part of a department or item of equipment or machinery or a person or a group of persons in respect of which costs are accumulated and one where control can be exercised. Cost centres are necessary for determining the costs.

**2. Classification of Accounts:** Classification of accounts is necessary to meet a required purpose i.e., function, asset or revenue item. Codes can be used to have a speedy collection of accounts. A standard is a predetermined measure of material, labour and overheads. It may be expressed in quantity and its monetary measurements in standard costs.

**3. Types of Standards:** The standards are classified into three categories:

**(i) Current Standard:** A current standard is a standard which is established for use over a short period of time and is related to current condition. It reflects the performance which should be accomplished during the current period. The period for current standard is normally one year. It is supposed that the conditions of production will remain unchanged. In case there is any change in price or manufacturing condition, the standards are also revised. Current standard may be ideal standard and expected standard.



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**(a) Ideal Standard:** The standard represents a high level of efficiency. It is fixed on the assumption that favourable conditions will prevail and management will be at its best. The price paid for materials will be lowest and wastages cost of labour and overhead expenses will be minimum possible.

**(b) Expected Standard:** This standard is based on expected conditions. It is the target which can be achieved if expected conditions prevail. All existing facilities and expected changes are taken into consideration while fixing these standards. An allowance is given for human error and normal deficiencies. It is realistic and an attainable and it is used for fixing efficiency standard.

**(ii) Basic Standard:** A basic standard is established for use for an indefinite period or a long period. These standards are revised only on the changes in specification of material and technology production.

**(iii) Normal Standard:** Normal standard is a standard which is anticipated can be attained over a future period of time, preferably long enough to cover one trade cycle. This standard is based on the conditions which will cover a future period, say 5 years, concerning one trade cycle. If a normal cycle of ups and downs in sales and production is 10 years then standard will be set on average sales and production which will cover all the years.

**4. Organisation for Standard Costing:** In a business concern a standard costing committee is formed for the purpose of setting standards. The committee includes production manager, purchase manager, sales manager, personnel manager, chief engineer and cost accountant. The Cost Accountant acts as a coordinator of this committee. He supplies all information for determining the standard and later on coordinates the costs of different departments. He also informs the committee about the change in price level, etc. The committee may revise the standards in the light of the changed circumstances.

**5. Setting of Standards:** The standard for direct material, direct labour and overhead expenses are fixed. The standards for direct material, direct labour and overheads should be set up in a systematic way so that they can be used as a tool for cost control easily.

#### **ANALYSIS OF VARIANCES:**

The divergence between standard costs, profits or sales and actual costs, profits or sales respectively will be known as variances. The variances may be favourable and unfavourable. If actual cost is less than the standard cost and actual profit and sales are more than the standard profits and sales, the variances will be favourable. On the contrary if actual cost is more than the standard cost and actual profit and sales are less than the standard profits and sales, the variances will be unfavourable. The variances are related to efficiency. If variances are favourable, it will show efficiency and if variances are unfavourable it will show inefficiency. The variances may be classified into four categories such as Direct Materials Variances, Direct Labour Variances, Overheads Cost Variances and Sales or Profit Variances.

#### **DIRECT MATERIAL VARIANCES:**

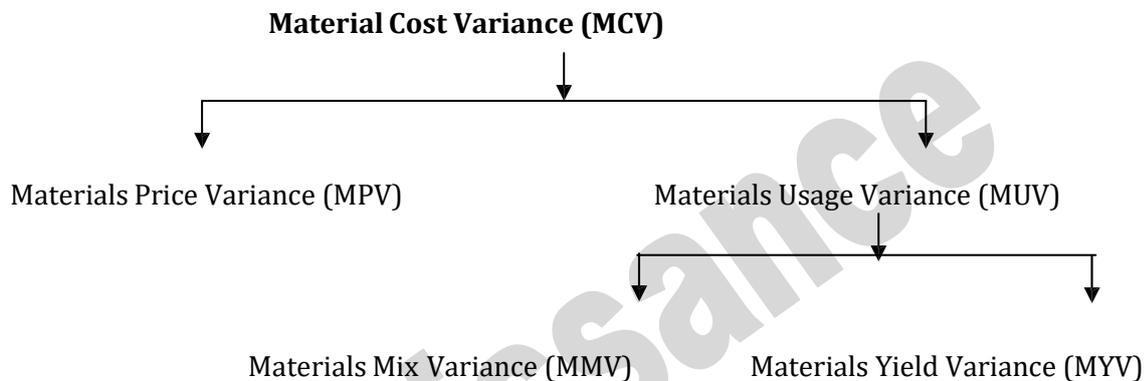
Direct material variances are also known as material cost variances. The material cost variance is the difference between the standard cost of materials that should have been incurred for manufacturing the actual output and the cost of materials that has been actually incurred. Material Cost Variance comprises of: (i) Material Price Variance and (ii) Material Usage Variance: Material usage variance may further be subdivided into material Mix Variance and Material Yield Variance.

The Chart depicts the divisions and subdivisions of material variances.



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The following equations may be used for verification of material cost variances.

- (i)  $MCV = MPV + MUV$  or  $MPV + MMV + MYV$
- (ii)  $MUV = MMV + MYV$

**(a) Materials Cost Variance:** Material cost variance is the difference between standard materials cost and actual materials cost. Material cost variance arises due to change in price of materials and variations in use of quantity of materials. Material cost variance is ascertained as such:

Materials Cost Variance = Standard Material Cost – Actual Material Cost

Standard Material Cost = Standard Price per unit x Standard Quantity of materials

Actual Material Cost = Actual price per unit x Actual quantity of materials.

If the standard cost is more than the actual cost, the variance will be favourable and on the other hand, if the actual cost is more than the standard cost, the variance will be unfavourable or adverse.

**(b) Materials Price Variance:** Materials price variance arises due to the standard price specified and actual price paid. It may also arise due to: (i) Changes in basic prices of materials, (ii) failure to purchase the quantities anticipated at the time when standards were set, (iii) failure to secure discount on purchases, (iv) failure to make bulk purchases and incurring more on freight, etc., (v) failure to purchase materials at proper time, and (vi) Not taking cash discount when setting standards.

Materials Price Variance = Actual Quantity (Standard price – Actual price)

In this case actual quantity of materials used is taken. The price of materials is taken per unit. If the answer is in plus, the variance will be favourable and it will be unfavourable if the result is in negative.

**(c) Material Usage Variance:** Material usage (or quantity) variance arises due to the difference in standard quantity specified and actual quantity of materials used. This variance may also arise due to: (i) Negligence in use of materials, (ii) More wastage of materials by untrained workers or defective methods of production, (iii) Loss due to pilferage, (iv) Use of material mix other than the standard mix, (v) More or less yield from materials than the standard set, and (vi) Defective production necessitating the use of additional materials.

Materials usage variance = Standard Price (Standard Quantity – Actual Quantity)

The quantities of material specified and actually used are taken and standard price per unit is used. If the answer from the above mentioned formula is in plus, the variance will be a favourable variance but if the answer is in minus the variance will be unfavourable or adverse.

**(d) Material Mix Variance:** Materials mix variance is that part of material usage variance which arises due to changes in standard and actual composition of mix. Materials mix variance is the difference between standard price of standard mix and standard price of actual mix. The standard price is used in calculating this variance. The variance is calculated under two situations: (i) When actual weight of mix is equal to standard weight of mix, and (ii) When actual weight of mix is different from the standard mix.

**(i) When Actual Weight and Standard Weight of Mix is Equal:**

In this case the formula for calculating mix variance is:

Standard cost of standard mix – Standard cost of actual mix.



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(Standard Price x Standard Quantity) – (Standard Price x Actual Quantity) Or Standard unit cost (Standard Quantity – Actual Quantity)

In case standard quantity is revised due to shortage of one material, the formula will be equal to Standard unit cost (Revised Standard Quantity – Actual Quantity).

**(ii) When Actual Weight and Standard Weight of Mix are Different:**

When quantities of actual material mix and standard material mix are different, the formula will be:

$$\left\{ \frac{\text{Total weight of Actual Mix}}{\text{Total weight of Standard Mix}} \times \text{Standard cost of Standard Mix} \right\} - (\text{Standard cost of Actual Mix})$$

In case the standard is revised due to the shortage of one material then revised standard will be used instead of standard, the formula will become:

$$\left\{ \frac{\text{Total Weight of Actual Mix}}{\text{Total Weight of Revised Standard Mix}} \times \text{Standard cost of Revised Standard Mix} \right\} - (\text{Standard cost of Actual Mix})$$

**(e) Materials Yield Variance:** This is the sub-variance of material usage variance. It results from the difference between actual yield and standard yield. It may be defined as that portion of the direct materials usage variance which is due to the standard yield specified and the actual yield obtained. It may arise due to low quality of materials, defective methods of production, carelessness in handling materials, etc.

Material yield variance is calculated with the following formula:

Standard Rate (Actual yield – Standard yield)

Standard Rate is calculated as follows:

$$\text{Std. Rate} = \frac{\text{Standard Cost of Standard mix}}{\text{Net standard output i.e., Gross output – Standard Loss}}$$



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There may be a situation where standard mix may be different from the actual mix. In this case the standard is revised in relation to actual mix and the question is solved with the revised standard and not with the original standard. The standard rate will be Calculated as follows:

$$\text{Std. Rate} = \frac{\text{Standard Cost of revised Standard mix}}{\text{Net standard output}}$$

In the earlier variances if the standard was more than the actual, the variance was favourable. But, in case of material yield variance the case is different. When actual yield is more than the standard yield, the variance will be favourable.

### **DIRECT LABOUR VARIANCES**

Labour Variances are discussed as follows:

#### **(a) Labour Cost Variance:**

Labour Cost Variance or Direct Wage Variance is the difference between the standard direct wages specified for the activity and the actual wages paid. It is the function of labour rate of pay and labour time variance. It arises due to a change in either a wage rate or in time or in both. It is calculated as follows:

$$\text{Labour Cost Variance} = \text{Standard Labour Cost} - \text{Actual Labour Cost} \\ \text{Or } (\text{Standard time} \times \text{Standard Wage Rate}) - (\text{Actual Time} \times \text{Actual Wage Rate})$$

#### **(b) Labour Rate of Pay or Wage Rate Variance:**

It is that part of labour cost variance which arises due to a change in specified wage rate. Labour rate variance arises due to (i) change in basic wage rate or piece-work rate, (ii) employing persons of different grades than specified, (iii) payment of more overtime than fixed earlier, (iv) new workers being paid different rates than the standard rates, and (v) different rates being paid to workers employed for seasonal work or excessive work load.

The wage rates are determined by demand and supply conditions of labour conditions in labour market, wage board awards, etc. So, wage rate variance is generally uncontrollable except if it arises due to the development of wrong grade of labour for which production foreman will be responsible. This variance is calculated by the formula: Labour Rate of Pay Variance = Actual time (Standard Rate - Actual Rate) The variance will be favourable if actual rate is less than the standard rate and it will be unfavourable or adverse if actual rate is more than the standard rate.

#### **(c) Labour Efficiency or Labour Time Variance:**

It is that part of labour cost variance which arises due to the difference between standard labour hours specified and the actual labour hours spent. It helps in controlling efficiency of workers. The reasons for this variance are: (i) lack of proper supervision, (ii) defective machinery and equipment, (iii) insufficient training and incorrect instructions, (iv) increase in labour turnover, (v) bad working Conditions, (vi) discontentment along workers due to unsatisfactory personnel relations, and (vii) use of non-standard material requiring more time to complete work.

Labour efficiency variance is calculated as:

$$\text{Labour efficiency variance} = \text{Standard Wage Rate} (\text{Standard Time} - \text{Actual Time}).$$

If actual time taken for doing a work is more than the specified standard time, the variance will be unfavourable. On the other hand, if actual time taken for a job is less than the standard time, the variance will be favourable.



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**(d) Idle Time Variance:**

This variance is the standard cost of actual time paid to workers for which they have not worked due to abnormal reasons. The Reasons for idle time may be power failure, defect in machinery, and non supply of materials, etc. Idle time variance should be segregated from the labour efficiency variance otherwise it will show inefficiency on the part of workers though they are not responsible for this. Idle time variance is always adverse and needs investigation for its causes. This variance is calculated as: Idle Time Variance-Idle Hours x Standard Rate

**(e) Labour Mix or Gang Composition Variance:**

This variance arises due to change in the actual gang composition than the standard gang composition. This variance shows to the management how much labour cost variance is due to the change in labour composition.

It may be calculated in two ways:

**(i) When standard and actual times of the labour mix are same:**

In this case the variance is calculated as follows:

Labour Mix Variance = Standard Cost of Standard Labour Mix – Standard Cost of Actual Labour Mix.

Due to the non-availability of one grade of labour, there may be a change in standard labour mix, and then revised standard will be used for standard mix. The formula will be: Labour Mix Variance = Standard cost of Revised Standard Labour Mix - Standard Cost of Actual Labour Mix.

**(ii) When standard and actual time of labour mix are different:**

In this case the variance will be calculated as follows:

$$\left\{ \frac{\text{Total Time of Actual Labour Mix}}{\text{Total Time of Standard Labour Mix}} \times \text{Standard cost of Standard Labour Mix} \right\} - (\text{Standard cost of Actual Labour Mix})$$

As in the earlier case, if labour composition is revised because of non-availability of one grade of labour then revised standard mix will be used instead of standard mix and the formula will become:

$$\left\{ \frac{\text{Total Time of Actual Labour Mix}}{\text{Total Time of Revised Standard Labour Mix}} \times \text{Standard cost of Revised Standard Labour Mix} \right\} - (\text{Standard cost of Actual Labour Mix})$$

**OVERHEAD VARIANCES:**

Overhead is the aggregate of indirect material cost, indirect wages (indirect labour cost) and indirect expenses. Thus, overhead costs are indirect costs and are important for the management for the purposes of cost control. Under cost accounting, overhead costs are absorbed by cost units on some suitable basis. Under standard costing, overhead rates are predetermined in terms of either labour hours (per hour) or production units (per unit of output). The formula for the calculation of overhead cost variance is given below:

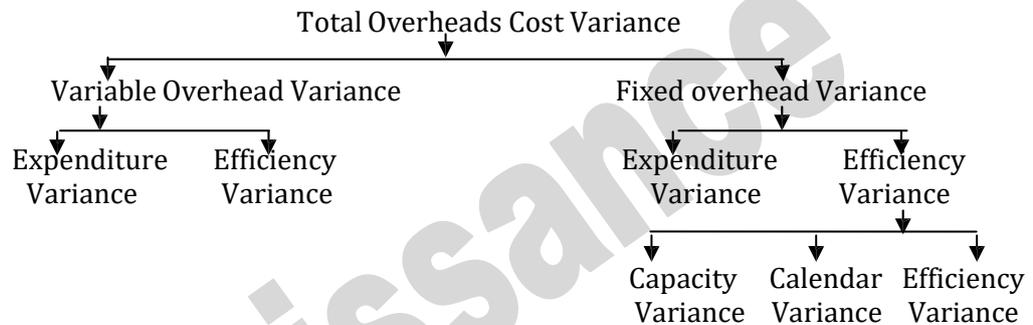
Overhead Cost Variance = Actual Output x Standard Overhead Rate per unit Actual Overhead Cost  
or, = Standard Hours for Actual Output x Standard Overhead Rate per hour Actual Overhead Cost  
An analytical study of the behaviour of overheads in relation to changes in volume of output reveals that there are some items of cost which tend to vary directly with the volume of Output whereas, there are others which remain unaffected by variations in the volume of output



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achieved or labour hours spent. The former costs represent the variable overhead and the latter fixed overheads. Therefore, overhead cost variances can be classified as:



**(i) Variable overhead variance:** Variable overheads vary directly with the volume of output and hence, the standard variable overheads vary directly with the volume of output and hence, the standard variable overhead rate remains uniform. Therefore, computation of variable overhead variance, also known as variable overhead cost variance parallels the material and labour cost variances. Thus, variable overhead cost variance (VOCV) is the difference between the standard variable overhead cost for actual output and the actual variable overhead cost. It can be calculated as follows:

$$\text{VOCV} = (\text{Actual Output} \times \text{Standard Variable Overhead Rate per unit}) - \text{Actual Variable Overheads}$$

or, 
$$= (\text{Standard Hours for Actual Output} \times \text{Standard Variable Overhead Rate per hour}) - \text{Actual Variable Overheads}$$

In case information relating to standard hours allowed, for actual output and the actual time (hours) taken is available, variable overhead cost variance can be further analysed into:

- (a) Variable Overhead Expenditure or Spending Variance, and
- (b) Variable Overhead Efficiency Variance.

**(a) Variable Overhead Expenditure or Spending Variance:** It is the difference between the standard variable overheads for the actual hours and the actual variable overheads incurred and can be calculated as:

$$\text{Variable Overhead Expenditure Variance} = (\text{Actual Hours} \times \text{Standard Variable Overhead Rate per hour}) - \text{Actual Variable Overhead}$$

or, 
$$= \text{Actual Hours} (\text{Standard Variable Overhead Rate} - \text{Actual Variable Overhead Rate})$$

**(b) Variable Overhead Efficiency Variance:** It represents the difference between the standard hours allowed for actual production and the actual hours taken multiplied with the standard variable overhead rate. Symbolically:

$$\text{Variable Overhead Efficiency Variance} = \text{Standard Variable Overhead Rate} (\text{Standard Hours}) - \text{Actual Hours for Actual Output}$$

**(ii) FIXED OVERHEADS VARIANCE:**

This variance is calculated as: 
$$\text{Actual Output} \times \text{Standard Fixed Overheads Rate} - \text{Actual Fixed Overheads}$$
. (The standard fixed overhead rate is calculated by dividing budgeted fixed overheads by standard output specified). It may be divided into expenditure and volume variances.

(a) Expenditure Variance = Budgeted Fixed Overheads - Actual fixed Overheads

(b) Volume Variance: This variance shows a variation in overhead recovery due to budgeted production being more or less than the actual production. When actual production is more than



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the standard production, it will show an over-recovery of fixed overheads and the variance will be favourable. On the other hand, if actual production is less than the standard production it will show an under recovery and the variance will be unfavourable. Volume variance may arise due to change in capacity, variation in efficiency or change in budgeted and actual number of working days. Volume variance is calculated as:  $\text{Actual Output} \times \text{Standard Rate} - \text{Budgeted Fixed Overheads}$  Volume variance is sub-divided into following variances:

**(i) Capacity Variance:** It is that part of volume variance which arises due to over- utilization or under-utilization of plant and equipment. The working in the factory is more or less than the standard capacity. This variance arises due to idle time caused by strikes, power failure, and non-supply of materials, break down of machinery, absenteeism etc. Capacity variance is calculated as:  $\text{Standard Rate} (\text{Revised Budgeted Units} - \text{Budgeted Units})$  or,  $\text{Standard Rate} (\text{Revised Budgeted Hrs} - \text{Budget Hrs})$ .

**(ii) Calendar Variance:** This variance arises due to the difference between actual number of days and the budgeted days. It may arise due to more public holidays announced than anticipated or working for more days because of change in holidays schedule, etc. If actual working days are more than budgeted, the variance will be favourable and it will be unfavourable if actual working days are less than the budgeted number of days Calendar variance can be expressed as:

Decrease or Increase in number of units produced due to the difference of budgeted and actual days  $\times$  Standard Rate per unit.

**(iii) Efficiency Variance:** This is that portion of the volume variance which arises due to increased or reduced output because of more or less efficiency than expected. It signifies deviation of standard quantity from the actual quantity produced. This variance is related to the efficiency variance of labour. Efficiency variance is calculated as:  $\text{Standard Rate} (\text{Actual Quantity} - \text{Standard Quantity})$  or,  $\text{Standard Rate per hour} (\text{Standard Hours Produced} - \text{Actual Hours})$ . If Actual quantity is more than the budgeted quantity, the variance will be favourable and it will be vice versa if actual quantity is less than the budgeted quantity.

### **SALES VARIANCES:**

A sales value variance exposes the difference between actual sales and budgeted sales. It may arise due to change in sales price, sales volume or sales mix. It is important to study profit variances. It may be classified as follows:

**1. Sales Value Variance:** A Sales Value Variance is the difference between budgeted sales and actual sales. It is calculated as:

$\text{Sales Value Variance} = \text{Actual Value of Sales} - \text{Budgeted Value of Sales}$ .

If actual sales are more than the budgeted sales, the variance will be favourable and on the other hand, the variance will be unfavourable if actual sales are less than the budgeted sales.

**2. Sales Price Variance:** A sales price variance arises due to the difference between the standard price specified and the actual price charged. It is calculated as:  $\text{Sales Price Variance} = \text{Actual Quantity} (\text{Actual Price} - \text{Standard Price})$ .

**3. Sales Volume Variance:** It is the difference between actual quantity of sales and budgeted quantity of sales. It is calculated as:

$\text{Sales Volume Variance} = \text{Standard Price} (\text{Actual Quantity of Sales} - \text{Standard Quantity of Sales})$ .

**4. Sales Mix Variance:** It is the difference of standard value of revised mix and standard value of actual mix.



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### PROFIT AND TURNOVER METHODS OF CALCULATING SALES VARIANCES:

A businessman may be interested more in knowing variations in profits and sales. The profit and turnover methods of calculating sales variances will be useful for this purpose. The variances are analysed as follows:

**(a) Total Sales Margin Variance:** Actual Profit – Budgeted Profit.

Actual Profit = Actual quantity sold x Actual profit per unit.

Budgeted Profit = Budgeted quantity of Sales x Budgeted profit per unit.

**(b) Sales Margin Variance due to Selling Price:** This variance arises due to the difference between actual selling price and standard selling price. This variance is calculated as:

Actual Quantity (Actual Price – Standard Price)

**(c) Sales Margin Variance due to Volume:** This Variance arises due to the difference between actual quantity of sales and budgeted quantity of sales. It is calculated as:

Standard Profit per Unit (Actual Quantity of Sales – Standard Quantity of Sales).

**(d) Sale Value Variance=** Budgeted sales value-Actual sales value.

**(e) Sales Volume Variance=** Standard selling price per Unit (Actual Quantity of Sales – Standard Quantity of Sales).

**(f) Selling Price Variance=** Actual Quantity (Budgeted selling Price – Actual Selling Price).

**(g) Sales Quantity Variance=** Budgeted sale value-Revised standard sales value.

Budgeted sale value=Budgeted quantity x budgeted selling price per Unit

Standard sales value= Actual Quantity x budgeted selling price per Unit

Actual sales value= Actual Quantity x Actual selling price per Unit

Revised Standard sales value= Total Standard sales value x budgeted proportion.

**(h) Sales Mix Variance=** Revised Standard sales value -Standard sales value

### ACCOUNTING TREATMENT OF VARIANCES:

When the financial statements are prepared they contain actual cost figures there is no variances. But, at the time of implementation of standard costing system, the accounting records contain both standard costs and actual costs, by which we calculate variances. Then the next question arises that how to deal with the variances at the end of the accounting period? Which method should be followed for treating them? The accountants suggest a number of methods for this purpose. Some of them are discussed, which may be adopted for the accounting treatment of variances:

**1. Transfer to Profit and Loss Account:** Under this method all variances are transferred to profit and loss account. In this method, the stock of finished goods, work-in-progress and cost of sales are shown at standard cost. It is considered that variances arise due to insufficiency or waste, so these should not become a part of normal cost of production.

**2. Allocation of Variances to Finished Stock:** In this method, variances are apportioned to finished goods, work-in-progress and cost of sales either on the basis of value of closing balances or on the basis of units. This method has the effect of recording actual costs in the financial statements. The adjustment of variances is made only in the general ledger and not in subsidiary books. The distribution of variances is not made to products. The variances not being actual losses should not be taken to profit and loss account.

**3. Transfer of Variances to the Reserve Account:** In this method cost variances are taken to next accounting period as deferred items. The variances whether favourable or adverse are transferred to a reserve account and are offset against future fluctuations. If the variances are favourable then they are taken to the liability side of the balance sheet and they are set off against adverse variances in future. On the other hand, if variances are adverse then these are taken to the balance sheet as a deferred charge and are written off against future favourable variances. This method



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is not in common use but it may be useful in cases where seasonal fluctuations occur so that favourable and adverse variances may be written off in the course of a business cycle concerning more than one accounting period.

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## **Unit IV**

### **MARGINAL COSTING**

**MARGINAL COSTING:** Marginal costing technique assumes that fixed costs are given and only variable costs and revenue can be influenced by short-term managerial actions. Therefore, in the short-term, profit can be maximised by maximising total contribution, which is the difference between total revenue and total variable costs. Managers decide the use of scarce resources to maximise total contribution by evaluating alternative uses of available resources. Underlying assumptions that fixed costs do not change with change in the activity level and that there is a linear relationship between revenue and variable costs, which do not hold good beyond the relevant range. Similarly, in practice, it is difficult to segregate the total cost into fixed and variable elements accurately. All these limit the reliability of marginal costing techniques. In spite of these limitations, the marginal costing technique has emerged as an important management tool.

**PRODUCT MIX:** If the same facilities can be used to produce more than one product, contribution per unit is taken as the profitability index for each product. The assumption is that there is no limiting factor and there is no limit on the number of units of each product, which can be produced and sold. In normal absorption costing, fixed costs are apportioned equitably over products to determine each product's profitability. Apportionment is based on the estimated usage of common resources by each product. The result may be misleading because it may lead to the conclusion that products, which show a net loss, should be discontinued.

**LIMITING FACTOR ANALYSIS:** Limiting factor or key factor is defined as anything which limits the activity of an entity. An entity seeks to optimize the benefit it obtains from the limiting factor. Examples are a shortage of supply of a resource and a restriction on sales at a particular price. Limiting factors restrict the number of units that can be produced or sold. Typical examples of limiting factors are: a) Sales demand in quantity, b) Sales demand in value, c) A limit to availability of material, d) A limit to availability of a particular grade of labour, e) A limit to machine capacity, and f) A shortage of working capital. More than one limiting factor may operate at a particular point in time. Under such a situation, the factor, which keeps the activity level at the minimum, should be considered as the key factor. However, the impact of other factors should also be considered in arriving at the final decision. Optimal utilization of a scarce resource implies that all the available supply of that resource is used up. Therefore, the contribution fund can be maximised by maximising the production and sale of the product, which earns the highest contribution per unit of the limiting factor. Thus, to determine the optimum production plan, the contribution per unit of the limiting factor for each product is calculated and products are ranked in descending order of contribution per unit of the limiting factor.

**MAKE OR BUY DECISION:** If no limiting factor is in operation, the decision to buy or to manufacture a product rests on whether the bought-out price of an article is lower than its marginal cost. The fixed cost is irrelevant for our decision because fixed cost will not change as a result of buying the product/component from outside. If the bought-out price of an article is lower than its marginal cost, it will be profitable to buy the article from outside in all circumstances. The firm will save marginal cost and will spend lower than the marginal cost to buy the article. If the bought-out price is higher than the marginal cost, the total cost of production will increase, if the firm decides to buy the article from outside. Therefore, if it has a choice, it will buy the article for which the difference between the bought-out price and the marginal cost is the



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lowest among article under consideration. If a limiting factor is in operation, the excess of bought-out price over marginal cost per unit of the limiting factor is to be considered. The article having the lowest excess of bought out price over its marginal cost per unit of the limiting factor will be selected for buying out from outside.

**DECISION ON METHODS OF MANUFACTURING:** Marginal costing technique can be used to choose from alternative methods of manufacturing. The method, which generates the highest contribution, is the most desirable method. The decision, therefore, rests on the contribution per unit or the contribution per unit of the limiting factor, if a limiting factor is identified.

**SHUTTING DOWN DECISIONS:** Marginal costing technique can be used in deciding whether to discontinue a section of the business. If we assume that discontinuance will not influence the total fixed costs of the firm, the decision will hinge on whether the particular section of the business is contributing towards fixed overheads. Closure of an activity, which generates positive contribution, reduces the current operating profit or increases the operating loss. In certain situations, a part of the fixed cost is avoided by temporary closure. In such a situation, if avoidable fixed cost is higher than expected contribution, the business segment should be closed.

**MARGINAL COST AND PRODUCT PRICING:** A long-term pricing policy should aim to recover more than the 'full cost' to ensure a reasonable return on capital employed. A firm cannot survive if it has to sell its products continuously below 'full cost'. Marginal cost may be used as a basis for short-term pricing decisions. Usually, marginal cost is used to determine prices for non-repetitive orders under difficult business conditions or to use spare capacity when acceptance of lower contributions and profit margins may be necessary. When capacity is unused, acceptance of an order with lower contribution helps partial recovery of the fixed cost. Factors to be considered in fixing selling prices when demand is below normal are the amount and the rate of contribution which the proposed selling price would yield; probability of securing an order with higher contribution during the period of execution of the order; proposed concession, when compared with the normal selling price on full cost basis; probable adverse effects on future sales. When one or more resources are scarce, (e.g. material is scarce), the first consideration must be to reserve the same for orders that would yield the highest contribution per unit of the scarce resource (the limiting factor). A decision to sell at a lower price might also have an adverse effect on the firm's general level of selling prices in its established market. This aspect should also be carefully examined before accepting an order with contribution lower than the normal contribution.

Other factors, which strongly justify acceptance of an order with lower contribution at the time adverse trade situations, are to: (a) hold together the skilled labour force; (b) keep the plant and machinery in operation and the workers busy; (c) utilize materials already received; (d) avoid costs involved in the closing and re-opening of the plant; (e) maintain the sales of complementary products at a satisfactory level; and (f) maintain position in established markets to avoid additional sales promotion expenses in reestablishing the markets.

Selling below full cost prices, even under a normal situation, may be adopted in order to: (a) introduce a new product, (b) execute an order in a special market segment (say, defense supply) which is immune from other market segments; (c) expand the export market; and (d) dispose of a product which deteriorates fast.