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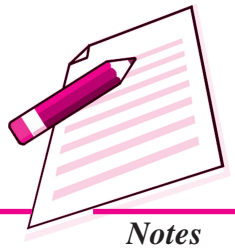
# 13

# COMPUTER AND COMPUTERISED ACCOUNTING SYSTEM



*Notes*

With the expansion of business the number of transactions increased. The manual method of keeping and maintaining records was found to be unmanageable. With the introducton of computers in business, the manual method of accounting is being gradually replaced. And finally, the database technology has revolutionised the accounts department of the business. organisations. In this lesson, we will study about characteristics of computer, role of computers in accounting, need of computerised accounting, etc.

## OBJECTIVES

***After studying this lesson, you will be able to:***

- state the meaning and characteristics of computer;
- describe the components of Computer and limitations of computer;
- explain the role of computer in accounting;
- explain the meaning and features of computerised Account.
- differentiate between manual accounting and computerised accounting;
- explain the Accounting Information System;
- describe the basic requirements of computerised accounting and
- understand the sourcing of accounting system.

## 13.1 COMPUTER AND ITS CHARACTERISTICS

Computer is an electronic device that can perform a variety of operations in accordance with a set of instructions called programme. It is a fast data processing electronic machine. It can provide solutions to all complicated situations. It accepts data from the user, converts the data into information and gives the desired result. Therefore, we may

define computer as a device that transforms data into information. Data can be anything like marks obtained in various subjects. It can also be name, age, sex, weight, height, etc. of all the students, savings, investments, etc., of a country. Computer is defined in terms of its functions.

> Computer is a device that accepts data, stores data, processes data as desired, retrieves the stored data as and when required and prints the result in desired format.

## Characteristics of Computer

A Computer is better than human being. It possesses some characteristics. These are as follows:

i. **Speed :** It can access and process data millions times faster than humans can. It can store data and information in its memory, process them and produce the desired results. It is used essentially as a data processor. All the computer operations are caused by electrical pulses and travels at the speed of light. Most of the modern computers are capable of performing 100 million calculations per second.

ii. **Storage :** Computers have very large storage capacity. They have the capability of storing vast amount of data or information. Computers have huge capacity to store data in a very small physical space.

Apart from storing information, today's computers are also capable of storing pictures and sound in digital form.

iii. **Accuracy :** The accuracy of computer is very high and every calculation is performed with the same accuracy. Errors occur because of human beings rather than technological weakness; main sources of errors are wrong program by the user or inaccurate data.

iv. **Diligence :** A computer is free from tiredness and lack of concentration. Even if it has to do 10 million calculations, it will do even the last one with the same accuracy and speed as the first.

v. **Versatility :** Computer can perform wide range of jobs with speed, accuracy, and diligence. In any organisation, often it is the same computer that is used for diverse purposes such as accounting, playing games, preparing electric bills, sending e-mail and so on.

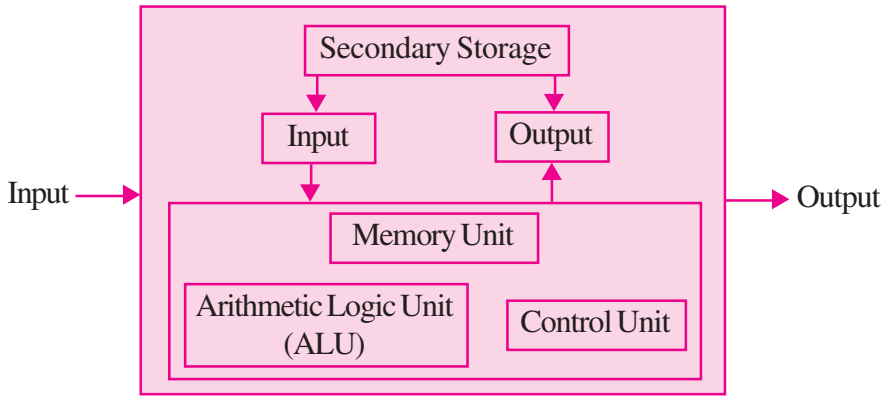
vi. **Communication :** Computers are being used as powerful communication tools. All the computers within an office are connected by cable and it is possible to communicate with others in the office through the network of computer.

vii. **Processing Power :** Computer has come a long way today. They began as mere prototypes at research laboratories and went on to help the business organisations,

and today, their reach is so extensive that they are used almost everywhere. In the course of this evolution, they have become faster, smaller, cheaper, more reliable and user friendly.

## 13.2 COMPONENTS OF COMPUTER

A computer consists of the major components *i.e.,* Input Unit, Central Processing Unit and Output Unit. Diagrammatically, these components may be presented as follows:




*Components of Computer*

- **Input Unit :** Input unit is controlling the various input devices which are used for entering data into the computer. The mostly used input devices are keyboard, mouse, and scanner. Other such devices are magnetic tape, magnetic disk, light pen, bar code reader, smart card reader, etc. Besides, there are other devices which respond to voice and physical touch. Physical touch system is installed at airport for obtaining the online information about departure and arrival of flight. The input unit is responsible for taking input and converting it into binary system.
- **Central Processing Unit (CPU) :** The CPU is the control centre for a computer. It guides, directs and governs its performance. It is the brain of the computer. The main unit inside the computer is the Central Processing Unit. Central Processing Unit is to computer as the brain is to human body. This is used to store program, photos, graphics, and data and obey the instructions in program. It is divided into three subunits :

  *(a) Control Unit :* Control unit controls and co-ordinates the activities of all the components of the computer. This unit accepts input data and converts it into computer binary system.

  *(b) Memory Unit :* This unit stores data before being actually processed. The data so stored is accessed and processed according to instructions which are also stored in the memory section of computer well before such data is transmitted to the memory from input devices.

***(c) Arithmetic and Logic Unit :*** It is responsible for performing all the arithmetical calculations and computations such as addition, subtraction, division, and multiplication. It also performs logical functions involving comparisons among variable and data items.

- **Output Unit :** After processing the data, it ensures the convertibility of output into human readable form that is understandable by the user. The commonly used output devices include monitor also called Visual Display Unit, printer etc.

## INTEXT QUESTIONS 13.1

***Fill in the blanks with correct word/words***

i. Computer is a fast data ..... electronic machine.

ii. All the computer operations are caused by ..... pulses and travels at the speed of light.

iii. A computer is free from ..... and lack of concentration.

iv. Computers are being used as powerful ..... tools.

v. The mostly used input devices are keyboard, ..... and scanner.

vi. Central Processing Unit is to computer, as the ..... is to human body.

vii. The commonly used output devices include ..... printer etc.

## 13.3 LIMITATIONS OF A COMPUTER AND COMPURISED ACCOUNTING

The limitations of computer are depending upon the operating environment they work in. These limitations are given below as :

- **Cost of Installation :** Computer hardware and software needs to be updated from time to time with availability of new versions. As a result heavy cost is incurred to purchase a new hardware and software from time to time.
- **Cost of Training :** To ensure efficient use of computer in accounting, new versions of hardware and software are introduced. This requires training and cost is incurred to train the staff personnel.
- **Self Decision Making :** The computer cannot make a decision like human beings. It is to be guided by the user.
- **Maintenance :** Computer requires to be maintained properly to help maintain its efficiency. It requires a neat, clean and controlled temperature to work efficiently.



- **Dangers for Health :** Extensive use of computer may lead to many health problems such as muscular pain, eyestrain, and backache, etc. This affects adversely the working efficiency and increasing medical expenditure.

## 13.4 ROLE OF COMPUTERS IN ACCOUNTING

The most popular system of recording of accounting transactions is manual which requires maintaining books of accounts such as Journal, Cash Book, Special purpose books, ledger and so on. The accountant is required to prepare summary of transactions and financial statements manually. The advanced technology involves various machines capable of performing different accounting functions, for example, a billing machine. This machine is capable of computing discount, adding net total and posting the requisite data to the relevant accounts.

With substantial increase in the number of transactions, a machine was developed which could store and process accounting data in no time. Such advancement leads to number of growing successful organisations. A newer version of machine is evolved with increased speed, storage, and processing capacity. A computer to which they were connected operated these machines. As a result, the maintenance of accounting data on a real-time basis became almost essential. Now maintaining accounting records become more convenient with the computerised accounting.

The computerised accounting uses the concept of databases. For this purpose an accounting software is used to implement a computerised accounting system. It does away the necessity to create and maintain journals, ledgers, etc., which are essential part of manual accounting. Some of the commonly used accounting softwares are Tally, Cash Manager, Best Books, etc.

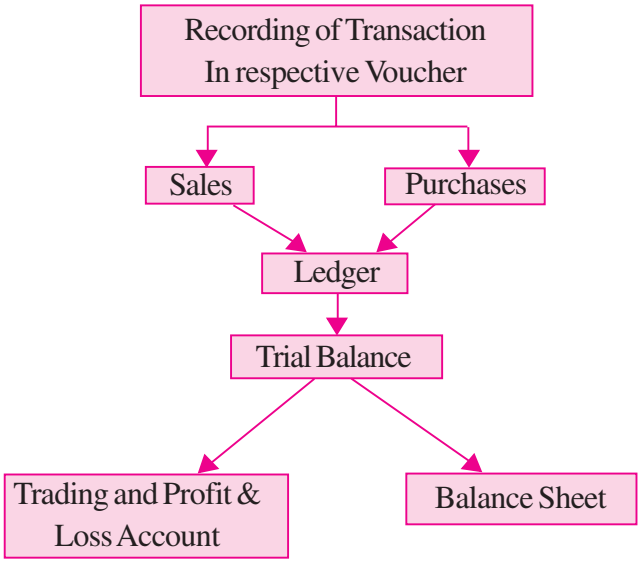
Accounting software is used to implement computerised accounting. The computerised accounting is based on the concept of database. It is basic software which allows access to the data contained in the data base. It is a system to manage collection of data ensuring at the same time that it remains reliable and confidential.

Following are the components of Computerised accounting software:

1. **Preparation of Accounting Documents :** Computer helps in preparing accounting documents like Cash Memo, Bills and invoices etc., and preparing accounting vouchers.

2. **Recording of Transactions :** Every day business transactions are recorded with the help of computer software. Logical scheme is implied for codification of account and transaction. Every account and transaction is assigned a unique code. The grouping of accounts is done from the first stage. This process simplifies the work of recording the transactions.

3. **Preparation of Trial Balance and Financial Statements :** After recording of transaction, the data is transferred into Ledger account automatically by the computer. Trial Balance is prepared by the computer to check accuracy of the records. With the help of trial balance the computer can be programmed to prepare Trading, Profit and Loss Account and Balance Sheet. These components can be shown as:




*Components of Computerised Accounting Software*

## 13.5 SALIENT FEATURES OF CAS

Following are the salient features requied for CAS software:

1. **Simple and Integrated :** CAS is designed to automate and integrate all the business operations, such as sales, finance, purchase, inventory and manufacturing. CAS is integrated to provide accurate, up-to-date business information rapidly. The CAS may be integrated with enhanced MIS (Management Information System), Multi-lingual and Data Organisation capabilities to simplify all the business processes of the organisation easily and cost-effectively.

2. **Transparency and Control :** CAS provides sufficient time to plan, increases data accessibility and enhances user satisfaction. With computerised accounting, the organisation will have greater transparency for day-to-day business operations and access to the vital information.

3. **Accuracy and Speed :** CAS provides user-definable templates (data entry screens or forms) for fast, accurate data entry of the transactions. It also helps in generalising desired documents and reports.

4. **Scalability :** CAS enables in changing the volume of data processing in tune with the change in the size of the business. The software can be used for any size of the business and type of the organisation.



5. **Reliability :** CAS makes sure that the generalised critical financial information is accurate, controlled and secured.

6. **Performing various Functions with Accuracy :** Accounting software is used to perform the function of accounting. The software functions on the concept of database. As discussed above, accounting software eliminates the process of posting a transaction into the Ledger Account, that is, when a transaction is entered in the computer system, the posting in the Ledger Account is automatic. The software is so designed that a transaction, once entered, is automatically transported to the Ledger Account also. In the present times, a number of accounting packages are available off-the-shelf in the market. They do a variety of jobs, listed below, for the end users :

   i. Online Input and Storage of Accounting Data;

   ii. On Screen or Physical Output Generation;

   iii. Printout of Vouchers and Invoices;

   iv. Printout of Ledgers and other books of accounts;

   v. Updating of customer accounts in Sales Ledger and supplier accounts in Purchase Ledgers;

   vi. Recording of Suppliers Invoices;

   vii. Recording of Bank Receipts;

   viii. Making payments to supplier and for the expenses;

   ix. Writing Day Books and General Ledger;

   x. Maintenance of Stock Accounts;

   xi. Aged Debtor Summary (who owes what and since when);

   xii. Preparation of Trial Balance, Profit and Loss Accounts and Balance Sheet;

   xiii. Stock Valuations;

   xiv. Payroll Analysis; and

   xv. Statutory Returns, such as VAT and Service Tax.

## 13.6 GROUPING OF ACCOUNTS

The increase in the number of transaction changes the volume and size of the business. Therefore, it becomes necessary to have proper classification of data. The basic classifications of different accounts embodied in a transaction are resorted through accounting equation.

## Accounting Equation

The modern accounting is based on double-entry system, which implies equality of assets and equities (liabilities and capital), i.e.

A = E

Where **E = L + C**

Now **A = L + C**

Where A = Assets

E = Equities

C = Capital

L = Liabilities

Thus, **Assets = Liabilities + Capital**

In this equation the *Liabilities* means claims on the firm by *creditors* and the *Capital* means claims of owners. The claims of owners keep on changing due to success (profit) or failure (loss) of the firm. This is reflected by the income statement, which provides the summary of income and expenses of business for a given accounting period. Keeping this in view, the above equation can be re-written as :

**Assets = Liabilities + Capital + (Revenues - Expenses)**

Each component of the above equation can be divided into group of accounts as follows:

***Revenue*** *means inflow of resources, which results from the sale of goods or services in the normal course of business and increase in capital. Expenses imply consumption of resources in generating revenues.*

- **ASSETS**
  - **Fixed Assets**
    - Land
    - Buildings
    - Plant and Machinery
    - Equipments
    - Furniture and Fixtures
    - Others



- **Current Assets**
  - ➔ Cash
  - ➔ Bank
  - ➔ Debtors
  - ➔ Inventories
  - ➔ Loans and Advances

- **CAPITAL**
  - **Share Capital**
  - **Reserve and Surplus**
    - ➔ Capital Reserve
    - ➔ General Reserve
    - ➔ Balance of Profit and Loss Account

- **LIABILITIES**
  - Secured Loans
  - Unsecured Loans
  - Creditors
  - Provisions

- **REVENUES**
  - Sales
  - Other Income

- **EXPENSES**
  - Material Consumed
  - Salary and Wages
  - Manufacturing Expenses
  - Depreciation
  - Administrative Expenses
  - Interest
  - Selling and Distribution Expenses

There is a hierarchical relationship between the groups and its components. In order to maintain the hierarchical relationships between a group and its sub-groups, proper codification is required to ensure neatness of classification.

| Main Code | Sub-Code | Account Code | Main Head | Sub Head | Account Head |
|---|---|---|---|---|---|
| 1 | | | Assets | | |
| | 1 | | | Fixed Assets | |
| | | 001 | | | Land |
| | | 002 | | | Buildings |
| | | 003 | | | Plant and Machinery |
| | | 004 | | | Electrical Installation |
| | | 005 | | | Vehicles |
| | | 006 | | | Furniture and Fixtures |
| | | 007 | | | Computers |

As an example, code for Land Account will be 11001. In the above codification. It has been considered that the enterprise is a single unit enterprise. If the enterprise has more than one unit, then a code may be given for the unit also. Codes may similarly be given for investments, current assets, etc., in the assets side.

Let us take an example of codification of liabilities, say Secured Loan:

| Main Code | Sub-Code | Account Code | Main Head | Sub Head | Account Head |
|---|---|---|---|---|---|
| 2 | | | Liabilities | | |
| | 1 | | | Secured Loan | |
| | | 001 | | | State Bank of India |
| | | 002 | | | Punjab Natonal Bank |
| | | 003 | | | ICICI Bank Ltd. |
| | | 004 | | | Axis Bank Ltd. |

As an example, a transaction with State Bank of India will be given accounting code of 21001. For example, a cheque is deposited in State Bank of India and therefore, State Bank of India is to be debited. Account with code 21001 will be debited.

Same procedure is followed when codification is done for items of Trading, Profit and Loss Account.



Let us take an example of codification of Incomes Head, say Sales for a dealer in electronic goods:

| Main Code | Sub-Code | Account Code | Main Head | Sub Head | Account Head |
|---|---|---|---|---|---|
| 3 | | | Income | | |
| | 1 | | | Sales | |
| | | 001 | | | Refrigerator Sale |
| | | 002 | | | Air-Conditioner Sale |
| | | 003 | | | Video Camera Sale |
| | | 004 | | | Digital Camera Sale |
| | | 005 | | | Plasma TV Sale |
| | | 006 | | | TV Sale |

As an example, a sale transaction of refrigerator will be given a code 31001.

Let us take an example of codification of Expense Head, say Administration and General Expenses:

| Main Code | Sub-Code | Account Code | Main Head | Sub Head | Account Head |
|---|---|---|---|---|---|
| 4 | | | Expenses | | |
| | 6 | | | Administration and General Expenses | |
| | | 001 | | | Telephone Expenses |
| | | 002 | | | Postage and Telegram |
| | | 003 | | | Internet Expenses |
| | | 004 | | | Newspaper and Periodicals |
| | | 005 | | | Conveyance Expenses |
| | | 006 | | | Travelling Expenses |

As an example, an expense on telephone will be given a code 46001.

It is not necessary that codification be done using numerical number only it can be using alphabet as codes or even alphanumeric codes. For example, Assets sides may be given a code say 'A'. Fixed Assets may be given 'F' and individual assets accounts be given numeric codes as are given in the illustration. The code for Land Account in the above illustration will be 'AF001'.

Account if wrongly coded, will lead to errors of principle whereby an item of liability may be treated as income and vice versa. Similarly, an item of asset may be treated as

expense and vice versa. The financial statements prepared without rectifying such errors will reveal incorrect financial results and position. Therefore, extreme caution needs to be exercised when grouping of accounts is done and also when the transaction is recorded using computers.

The process of 'Grouping of Accounts' is the basic or fundamental requirement for producing financial statements. The second stage of application of computers in accounting is to record individual transactions using the accounting software. But always bear in mind that accounting concepts shall always be followed.

## Using Software of CAS

There are two basic activities in using software of CAS - One time activities and recurring activities. One time activities include creation of Organisation details, accounting year, type of ledger (also called "creation of master files"), et. While recurring activities include entry of transactions and generation of reports. The transactions are recorded on the basis of Cash Vouchers, Bank Vouchers, Purchase Vouchers, Sales Vouchers, Journal Vouchers, etc. Reports include generation of Day books, Ledger, Trial Balance, Profit and Loss Account, Balance Sheet, and Cash Flow Statement.

## Security Features of CAS Software

Every accounting software ensures data security, safety and confidentiality. Therefore every, software provides the following:

- **Password Security :** Password is a mechanism, which enables a user to access a system including data. The system facilitates defining the user rights according to organisation policy. Consequently, a person in an organisation may be given access to a particular set of a data while he may be denied access to another set of data.

  ***Password*** *is the key (code) to allow the access to the system.*

- **Data Audit :** This feature enables one to know as to who and what changes have been made in the original data thereby helping and fixing the responsibility of the person who has manipulated the data and also ensures data integrity. Basically, this feature is similar to Audit Trial.

- **Data Vault :** Software provides additional security through data encryption.

  ***Encryption*** *essentially scrambles the information so as to make its interpretation extremely difficult (almost impossible). Thus,* ***Encryption*** *ensures security of data even if it lands in wrong hands, because the receiver of data will not be able to decode and interpret it.*



## 13.7 SOFTWARES OF COMPUTERISED ACCOUNTING SYSTEM

Computers, with the help of Application Software, perform the same functions that are carried out when accounting is done manually. Let us discuss these.

i. **Payroll Processing :** Payroll Procesing means preparation of salaries and wages, accounting along with the leave records, deduction of provident fund, ESI, etc. Leave records are part of payroll as salaries and wages are prepared taking into account the leaves taken. ESI and Provident Fund are statutory deductions out of salaries and wages and also contribution by the employers.

   Computer takes the data such as Employee's Name, Father's Name, Employee code, Basic Salary, Perquisites, Percentage of deduction for Provident Fund, ESI and advance, etc., from the Master Data and the number of days from the attendance record. It not only produces the salary and wages sheet timely but also accurately. The entry in the financial books of account is recorded from the payroll processing.

ii. **Transaction Recording :** Transactions are recorded using the utility or application software. Transaction recording under the computerised environment is not only accurate but is also less time consuming. It is so because two time consuming processes under the manual system namely posting of entries into ledger accounts and casting (totalling and balancing) are automated by the software. Software are designed in the manner that the process of posting and casting is carried out simultaneously with recording of transaction.

   A functional key is provided to record transactions relating to cash, purchase, sale and journal. It means that if cash transactions are to be recorded the functional key when operated will open the cash book.

iii. **Ledger :** The software is designed in such a manner that the transaction is posted to the ledger account and the ledger account is casted simultaneously with the recording of transaction. We had discussed in this chapter about grouping of accounts. Posting of transaction into ledger account is carried out as guided by the account code given to the transaction.

iv. **Trial Balance :** Posting of transaction into ledger account and also casting of ledger account is carried out simultaneously with the recording of transaction. It means that a trial balance can be extracted even after every transaction without any efforts.

v. **Financial Statements :** Financial Statements, *i.e.,* Trading, Profit and Loss Account and the Balance Sheet like extracting a trial balance can also be extracted after every transaction.

## 13.8 ADVANTAGES OF COMPUTERISED ACCOUNTING SYSTEM

A computerised accounting system has many advantages, as discussed below:

i. **Large Volume of Transactions :** In the present-day business environment, the transactions of a business are normally large in volume. The computerised accounting system can store and process such voluminous transactions with speed and accuracy.

ii. **Scalability :** A computerised accounting system is scalable to handle the growing transactions.

iii. **Security :** The accounting data under the computerised environment is safer than the accounting data under the manual system. The data can be kept secure by using a password, *i.e.,* allowing only authorised users to access the data.

iv. **Timely Reporting :** Availability of reports on time enables the management to take quick decisions, which is an important element for the success of an enterprise. A computerised accounting system makes these reports available as and when required.

v. **Lower Cost :** The cost of maintaining books of accounts under the computerised process is lower than in comparison to the manual process.

vi. **Less Paper Work :** Under the computerised process, there is less paper work as compared to the paper work in the manual process.

vii. **Flexible Reporting :** Reporting under the computerised process is flexible in comparison to the manual process. The database can be processed further to obtain the desired report. For example, data relating to debtors can be analysed to ascertain the list of customers to whom sales above Rs. 1,00,000 has been made in an accounting year or of the regular customers of the enterprises and so on.

viii. **Queries :** Replies to queries based on external factors can be obtained easily under a computerised process. For example, list of debtors who have not paid on time can be taken out by processing the database.

ix. **Accurate :** Computer statements are far more accurate in comparison to manual statements.

x. **Updating :** Updating and treatment of wrong transactions are easily done.

xi. **Financial Statements :** From the day book, the Voucher Posting software can manage the General Ledger, Trial Balance and Balance Sheet.

## 13.9 LIMITATIONS OF COMPUTERISED ACCOUNTING SYSTEM

However, computerised accounting suffers from the following limitations :

i. **Controls :** If adequate controls are not built and, where build, are not followed, it can lead to loss of data. It is important to take back-ups at regular intervals to avoid such a situation.

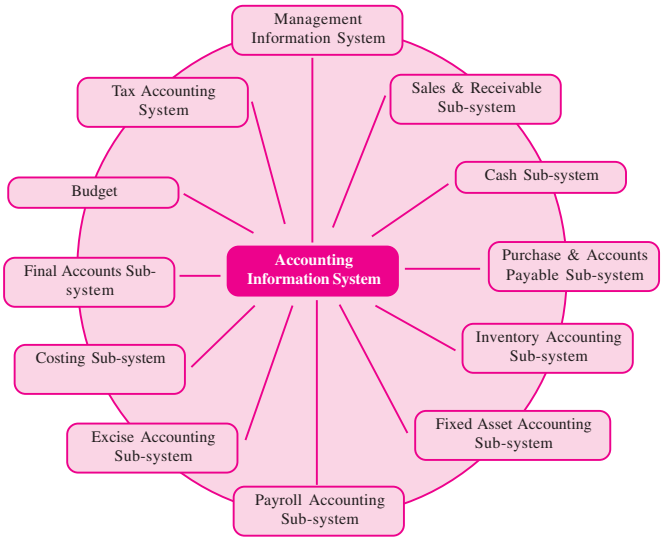
ii. **Data Corruption :** The data can get corrupted through viruses that may come in through the internet or the use of external input devices without scanning them for viruses.

iii. **Trained Computer Operators :** Untrained computer operators can lead to loss of data.

iv. **Limitations of Software :** The software is developed on the basis of the experiences of the team of developers. As such, it may not be able to deal with a specific problem that may arise.

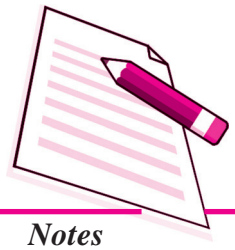
## 13.10 ACCOUNTING INFORMATION SYSTEM (AIS)

Accounting Information System (AIS) and its various sub-systems may be implemented through Computerised Accounting System. The subsystems of AIS are briefly described:




i. **Cash and Bank Sub-System :** It deals with the receipt and payment of cash both physical cash and electronic fund transfer. Electronic fund transfer takes place without having the physical entry or exit of cash by using the credit cards or electronic banking.

ii. **Sales and Accounts Receivable Sub-system :** It deals with recording of sales, maintaining of sales ledger and receivables. It generates periodic reports about sales, collections made overdue accounts and receivables position as also ageing schedule or receivables/debtors.



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iii. **Inventory Sub-system :** It deals with the recording of different items purchased and issued specifying the price, quantity and date. It generates the inventory position and valuation report.

iv. **Purchase and Accounts Payable Sub-system :** It deals with the purchase and payments to creditors. It provides for ordering of goods, sorting of purchase expenses and payment to the creditors. It also generates periodic reports about the performance of suppliers, payment schedule and position of the creditors.

v. **Payroll Accounting Sub-system :** It deals with payment of wages and salary to employees. A typical wage report details information about basic pay, dearness allowance, and other allowances and deductions from salary and wages on account of provident fund, taxes, loans, advances and other charges. The system generates reports about wage bill, overtime payment and payment on account of leave encashment, etc.

vi. **Fixed Assets Accounting Sub-system :** It deals with the recording of purchases, additions, deletions, usage of fixed assets such as land and buildings, machinery and equipments, etc. it also generates reports about the cost, depreciation, and book value of different assets.

vii. **Expense Accounting Sub-system :** This sub-system records expenses under broad groups such as manufacturing administrative, financial, selling and distributions and others.

viii. **Tax Accounting Sub-system :** This sub-system deals with compliance requirement value-added tax (VAT), excise, customs and income tax. This sub-system is used in large size organisation.

ix. **Final Accounts Sub-system :** This subsystem deals with the preparation of Profit and Loss accounts, Balance Sheet and cash flow statements for reporting purposes.

x. **Costing Sub-system :** It deals with the ascertainment of cost of goods produced. It has linkages with other accounting sub-systems for obtaining the necessary information about cost of material, labour, and other expenses. This system generates information about changes in the cost that takes place during the period under review.

xi. **Budget Sub-system :** It deals with the preparation of budget for the coming financial year as well as comparison with the current budget of the actual performances.

xii. **Management Information System :** Management Information System (MIS) deals with generation and processing of reports that are vital for management decision-making. The Information system should be so flexible as to provide



customised reports to support various managerial functions such as planning, organising, staffing, oversight, control and decision-making including operational, functional and strategic nature.

On the basis of the discussions, these are the following differences between manual accounting and computerised accounting.

## 13.11 COMPARISON OF THE MANUAL AND COMPUTERISED ACCOUNTING SYSTEMS

Accounting is a process of identifying, recording, classifying and summarising financial transactions to produce financial statements. Let us discuss the processes of under the two accounting processes, *i.e.*, manual process and computerised process, for the purpose of comparison.

- **Identifying Financial Transactions :** Identifying Financial Transactions and recording them in the books of accounts by applying the principle of accounting is a manual process carried out by an authorised person or on the basis of the accounting manual. This process is, thus, common under both the processes.
- **Recording :** The process of Recording transaction in the books of original entry, posting them in the ledger accounts, performing mathematical functions, *i.e.,* adding, subtraction and totalling, are carried out manually under the manual process. In the computerised process, transactions are recorded in the books of accounts and the remaining functions are performed without any further process or command being carried out manually.
- **Classification :** In the manual process, the transactions are recorded in the book of original entry and are posted into the ledger accounts. It means that, after recording the transaction, another process of posting process is carried out by internal sorting of data, *i.e.,* with the help of utility or application software, without any further process.
- **Summarising :** In the manual system of accounting, the data under each Ledger is summarised and a balance of each account is ascertained to prepare a Trial Balance. As a result, preparing ledger accounts is essential to prepare a Trial Balance. In the computerised process, a transaction or event, once recorded, is stored in the database and can be processed to produce a Trial Balance directly.
- **Adjustments Entries :** Adjustment Entries are passed to rectify an error or to follow the matching concept of accounting, *i.e.,* matching the cost with revenue, The process of passing adjustment entries can be equated with the recording process. These entries are identified and recorded in the books of accounts. The remaining process is the same as discussed above.

- **Grouping of Accounts :** One of the basics of correct accounting is determining whether a transaction is capital or revenue in nature and, accordingly, which account head is to be debited or credited. Once this decision is taken, the account is grouped as an asset, a liability, an income or an expense at the time of preparing the financial statements. The above process is followed when the manual system of accounting is adopted. However, in computerised accounting, whether an account head is an asset, a liability, an income or an expense, is decided at the time the transaction takes place, as in the case of manual accounting. It is also defined whether the particular head of account shall be shown as an asset or liability, or an income or expense.

- **Financial Statements :** In the manual process, availability of the Trial Balance is essential to prepare the Financial Statements. In the computerised process, financial statements are generated from the system itself and, hence, there is no need to have a Trial Balance.

## Difference between Manual Accounting and Computerised Accounting

| *Point of Difference* | *Manual Accounting* | *Computerised Accounting* |
|---|---|---|
| 1. Recording | Recording of financial transactions is through books of original entry. | Data content of these transactions is stored in well designed data base. |
| 2. Classification | Transactions recorded in the books of original entry are further classified by posting them into ledger accounts. This results in transaction data duplicity. | No such data duplications is made. In order to produce ledger accounts the stored transaction data is processed to appear as classified so that same is presented in the form of report. |
| 3. Summarising | Transactions are summarised to produce trial balance by ascertaining the balances of various accounts. | The generation of ledger accounts is not necessary condition for trial balance. |
| 4. Adjusting entries | Adjusting entries are made to adhere the principle of matching. | There is nothing like making adjusting entries for errors and rectifications. |
| 5. Financial statements | The preparation of financial statements assumes the availability of trial balance. | The preparation of financial statements is independent of producing the trial balance. |



## 13.12 ACCOUNTING SOFTWARES

Accounting Software can be categorised into :

1. **Readymade Software :** Readymade Softwares are the softwares that are developed not for any specific user but for the users in general. Since, the readymade softwares are for general user, it is not necessary that all the modules of such softwares are of use for every user. It is likely that a particular module say 'Payroll' may not be used because the enterprise has very few employees. Similarly, a service enterprise will not require VAT module while a retail enterprise will not require Service Tax module. Some of the Readymade Software available are Tally, Ex, Busy and Professional Accountant. Out of these, Tally is very widely used.

   Readymade Software has its own advantages and disadvantages. *The advantages are :*

   i. **Readymade Softwares are economical :** Readymade Software are prepared not for particular user but for the user in general. It means development cost of the software is not loaded on a single software for determining the cost and thus selling price. The price of the software is determined on the basis of number of pieces expected to be sold. On the other hand, user specific softwares are expensive as the development cost is loaded on one software.

   ii. **Readymade Software are Available off-the-shelf :** It therefore, saves time that may be required for development of tailor-made softwares or for customisation. Development of a software consumes considerable time both at the user end and software development end. User will have to explain its requirements to software developer who on the basis of his understanding will develop software, test it with a dummy data, debug the software to the best of his understanding before handing it to the user. All these activities consume time. On the other hand, Readymade Software requires only installation and are ready for use.

   iii. **Readymade Software are Development by a Group of Experienced Professionals :** It therefore, addresses the problem that may get overlooked if the user specific software is developed.

   iv. **Software Like Any Other Product, Requires Maintenance :** Readymade Softwares being sold to a number of users, has better and economical after sales maintenance service. After sales maintenance service, in the case of user specific softwares will not only be expensive but time consuming as well.

v. **Readymade Softwares are Used by a Number of Users :** Therefore, trained accounting persons are easily available. On the other hand, in the case of tailormade softwares, every time a new person is recruited, training will have to be imported.

*The disadvantages of Readymade Softwares are :*

i. Readymade Softwares are Window-based softwares, which support only Laserjet printers for-outputs in physical form (printout). Printing by laserjet printers is more expensive than Dot-Matrix printers.

ii. Normally, Readymade Softwares do not have the facility of secondary back-up. It means, in case of data loss, the entire data may not be recovered. But, this limitation can be overcome by taking regular back-up of accounting data.

2. **Customised Software :** The term Customised Software means making changes in the readymade software to suit the specific requirements of the user, *i.e.,* making it user-specific. The software available off-the-shelf is modified to suit the requirements of the user. For example, the design of the invoice is changed to specifications of the user. The developer, to meet specific user requirements, can modify all the readymade softwares. However, the user has to bear the cost of such changes. The advantages and disadvantages of readymade software are also the advantages of Customised Software.

3. **Tailor-made Software :** The term Tailor-made Software refers to designing and developing user-specific software. These softwares, being user-specific, are not available off-the-shelf but are developed to meet the requirement of the user on the basis of discussion between the user and developers.

*Advantages of Tailor-made Software are :*

i. It, being user specific, takes care of the accounting reports and MIS that may be required by the user and the management of the enterprise.

ii. The software being tailor-made, the enterprise may have to engage a software engineer to maintain it. In other words, the problem faced can be countered immediately.

iii. Well-trained users use the softwares and, therefore, they can maximise software utilization.

*Disadvantages of Tailor-made Software are :*

i. The development cost of the software is much higher than the cost of readymade or customised software.

ii. In case the accounting person leaves the job, it takes some time before the new person becomes fully conversant with the software.



iii. Development and maintenance costs are higher than in the case of readymade or customised software.

## 13.13 FACTORS AFFECTING THE DECISION OF SELECTION AN ACCOUNTING SOFTWARE

It is essential to consider some factors before Sourcing an Accounting Software, *i.e.,*

i. **Flexibility :** A computerized accounting system must be flexible in respect of data entry, retrieval of data and generating designs of report. The user should be able to run the software on a variety of computer environments and machines, that is, on any configuration of computers and available operating systems.

ii. **Cost of Installation and Maintenance :** It is a must to consider that the cost of the accounting software, its relevant hardware and the maintenance, cost of addition of dodules, training of staff, updating of versions and data recovery in case of data failure are negotiable and within the ability of the organization to afford it.

iii. **Size of Organization :** An accounting system must be according to the size of the organization, *i.e.,* volume of business transactions, multi-user requirements.

iv. **Ease of Adaptation and Training Needs :** Some accounting softwares are user-friendly and require a simple training to the users. However, some other complex software packages, linked to other information systems, require intensive training on a continuous basis. The software must be capable of attracting users.

v. **Expected Level of Secrecy (Software and Data) :** Security features of an accounting system software are also important. Software should ensure that it prevents unauthorized access and manipulation of data. In tailored software, the user rights may be restricted according to the departments and their relevant accounting software functions.

vi. **Exporting/Importing Data Facility :** The software should allow easy data transfer option for flexible reporting, such as transfer of information directly from the ledger into the spreadsheet software like Lotus or Excel.

## 13.14 COMPUTERISED ACCOUNTING

Transaction processing system (TPS) is the first stage of computerised accounting system. The purpose of any TPS is to record, process, validate and store transactions that occur in various functional areas of a business for subsequent retrieval and usage. TPS involves following steps in processing a transaction: Data Entry, Data Validation, Processing and Revalidation, Storage, Information and Reporting.

It is one of the transaction processing systems which is concerned with financial transactions only. When a system contains only human resources it is called manual

system; when it uses only computer resources, it is called computerised system and when it uses both human and computer resources, it is called computer-based system.

These steps can be explained with an example making use of AutomatedTeller Machine (ATM) facility by a Bank-Customer.

1. **Data Entry :** Processing presumes data entry. A bank customer operates an ATM facility to make a withdrawal. The actions taken by the customer constitute data which is processed after validation by the computerised personal banking system.

2. **Data Validation :** It ensures the accuracy and reliability of input data by comparing the same with some predefined standards or known data. This validation is made by the 'Error Detection' and 'Error Correction' procedures. The control mechanism, wherein actual input data is compared with predetermined norm is meant to detect errors while error correction procedures make suggestions for entering correct data input. The Personal Identification Number (PIN) of the customer is validated with the known data. If it is incorrect, a suggestion is made to indicate the PIN is invalid. Once the PIN is validated, the amount of withdrawal being made is also checked to ensure that it does not exceed a pre-specified limit of withdrawal.

3. **Processing and Revalidation :** The processing of data occurs almost instantaneously in case of Online Transaction Processing (OLTP) provided a valid data has been fed to the system. This is called check input validity. Revalidation occurs to ensure that the transaction in terms of delivery of money by ATM has been duly completed. This is called check output validity.

4. **Storage :** Processed actions, as described above, result into financial transaction data i.e. withdrawal of money by a particular customer, are stored in transaction database of computerized personal banking system. This makes it absolutely clear that only valid transactions are stored in the database.

5. **Information :** The stored data is processed making use of the Query facility to produce desired information.

6. **Reporting :** Reports can be prepared on the basis of the required information content according to the decision usefulness of the report.

## INTEXT QUESTIONS 13.2

***Fill in the blanks with correct word/words :***

i. Computer hardware and ..... need to be updated from time to time.



ii. The ..... cannot make a decision itself like human beings.

iii. ..... requires a neat, clean and controlled temperature to work efficiently.

iv. The most popular system of recording of accounting transactions is .....

v. The computerised accounting uses the concept of .....

vi. Accounting ..... is used to implement a computerised accounting.

## 13.15 NEED AND REQUIREMENTS OF COMPUTERSIED ACCOUNTING

The need for computerised accounting arises from advantages of speed, accuracy and lower cost of handling the business transactions.

- **Numerous Transactions :** The computerised accounting system is capable of handling large number of transactions with speed and accuracy.
- **Instant Reporting :** The computerised accounting system is capable of offering quick and quality reporting because of its speed and accuracy.
- **Reduction in Paper Work :** A manual accounting system requires large physical storage space to keep accounting records/books and vouchers/ documents. The requirement of stationery and books of accounts along with vouchers and documents is directly dependent on the volume of transactions beyond a certain point. There is a dire need to reduce the paper work and dispense with large volumes of books of accounts. This can be achieved by introducing computerised accounting system.
- **Flexible Reporting :** The reporting is flexible in computerised accounting system as compared to manual accounting system. The reports of a manual accounting system reveal balances of accounts on periodic basis while computerised accounting system is capable of generating reports of any balance as when required and for any duration which is within the accounting period.
- **Accounting Queries :** There are accounting queries which are based on some external parameters. For example, a query to identify customers who have not made the payments within the permissible credit period can be easily answered by using the structured query language (SQL) support of database technology in the computerised accounting system. But such an exercise in a manual accounting system is quite difficult and expensive in terms of manpower used. It will still be worse in case the credit period is changed.
- **On-line Facility :** Computerised accounting system offers online facility to store and process transaction data so as to retrieve information to generate and view financial reports.

- **Scalability :** Computerised accounting system are fully equipped with handling the growing transactions of a fast growing business enterprise. The requirement of additional manpower in Accounts department is restricted to only the data operators for storing additional vouchers. There is absolutely no additional cost of processing additional transaction data.
- **Accuracy :** The information content of reports generated by the computerised accounting system is accurate and therefore quite reliable for decision-making. In a manual accounting system the reports and information are likely to be distorted, inaccurate and therefore cannot be relied upon. It is so because it is being processed by many people, especially when the number of transactions to be processed to produce such information and report is quite large.
- **Security :** Under manual accounting system it is very difficult to secure such information because it is open to inspection by any eyes dealing with the books of accounts. However, in computerised accounting system only the authorised users are permitted to have access to accounting data. Security provided by the computerised accounting system is far superior compared to any security offered by the manual accounting system.

## Basic Requirements of the Computerised Accounting System

The basic requirements of any computerised accounting system are the followings:

- **Accounting Framework :** It is the application environment of the computerised accounting system. A healthy accounting framework in terms of accounting principles, coding and grouping structure is a pre-condition for any computerised accounting system.
- **Operating Procedure :** A well-conceived and designed operating procedure blended with suitable operating environment of the enterprise is necessary to work with the computerised accounting system.

The computerised accounting is one of the database-oriented applications wherein the transaction data is stored in well- organized database. The user operates on such database using the required interface and also takes the required reports by suitable transformations of stored data into information. Therefore, the fundamentals of computerised accounting include all the basic requirements of any database-oriented application in computers.

## INTEXT QUESTIONS 13.3

***I. Fill in the blanks with correct word/words :***

i. In a manual accounting system, transactions recorded in the books of .....

ii. The generation of ledger accounts is not a necessary condition for making ..... in a computerised accounting system.

iii. The computerised accounting system is capable of handling ..... of transactions.

iv. The ..... accounting system is capable of offering quick and quality reporting.

v. Computerised accounting system offers ..... facility to store transaction data.

vi. Computerised accounting system is ..... to the manual accounting system.

vii. The computerised accounting is one of the ..... oriented applications

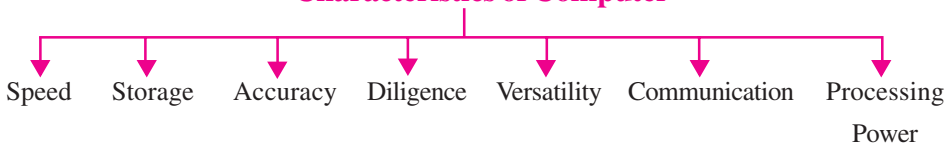
II. Give any two advantages & two limitations of Computerised Accounting System.

III. Define Management Information System.

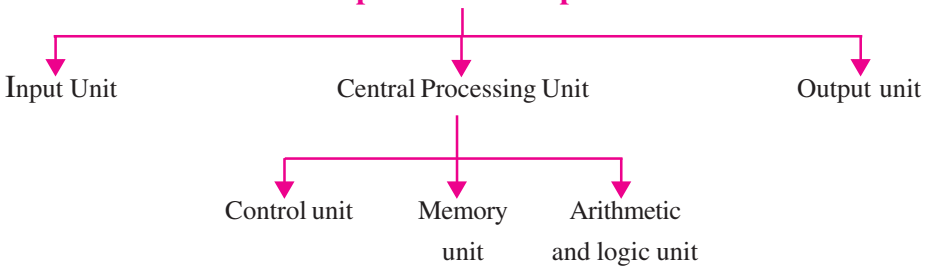
## WHAT YOU HAVE LEARNT

- Computer is an electronic device that can perform a variety of operations in accordance with a set of instructions called programme. It is a fast data processing electronic machine. It can provide solutions to all complicated situations.

- **Characteristics of Computer**




- **Components of Computer**




- **Limitations of a Computer**

- Salient features of CAS simple & Integrated Transparency and Control Accuracy & Speed Scalability Reliability.
- Accounting Equation is A = L + C
- **Computerised Accounting :** Transaction Processing System (TPS) is the first stage of computerised accounting system.
- **Need for Computerised Accounting**

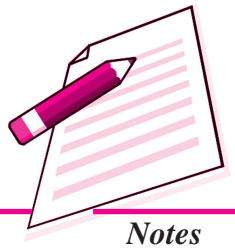
| Numerous transactions | Instant reporting | Reduction in paper work | Flexible reporting | Online facility | Accuracy | Security |
|---|---|---|---|---|---|---|

- Advantages of CAS include speed, efficiency, arithmetic accuracy, cost saving, confidentiality of data.
- Limitation of CAS include provision for (a) fast obsolescence of technology, (b) data loss due to either power interruption or damage to hard disk, (c) virus and other security hazards.
- Accounting Information System is an integration of various sub-systems such as : (i) cash sub-system, (ii) sales and accounts receivable sub-system, (iii) inventory sub-system, (iv) purchase and accounts payable sub-system, (v) payroll accounting sub-system, (vi) fixed asset accounting sub-system, (vii) expense accounting sub-system, (viii) tax accounting sub-system, (ix) final accounts sub-system, (x) costing sub-system, (xi) budget sub-system, (xii) management information sub-system.
- Difference between manual accounting and computerised accounting

| Recording | Classification | Summarising | Adjusting entries | Financial statement |
|---|---|---|---|---|

## TERMINAL EXERCISE

1. State the meaning and characteristics of Computer.
2. Explain the components of computer.
3. Explain the limitations of a Computer.
4. Explain the role of Computers in Accounting.
5. Differentiate between Manual accounting and Computerised accounting system.
6. Enumerate the basic requirements of any computerised accounting system.



*Notes*

7. Explain the components of Computerised Accounting Software.
8. Describe the salient features of Computerised Accounting Software.
9. How does Computerised Accounting Software ensures data security, safety and confidentiality ? Explain.
10. Explain in brief various softwares of Computerised Accounting Software.
11. Describe any six sub systems of Accounting Informations Systems.

## ANSWERS TO INTEXT QUESTIONS

**13.1** (i) processing (ii) electrical (iii) tiredness
(iv) communication (v) mouse (vi) brain (vii) monitor

**13.2** (i) software (ii) computer (iii) computer
(iv) manual (v) databases (vi) software

**13.3** I. (i) original entry (ii) trial balance (iii) large number
(iv) computerised (v) online (vi) superior
(vii) database

II. a) Limitations of Computer : High cost of installation, High cost of training, Dangers for Health.

b) Components of Computerised Accountancy System : Recording of transactions, Preparation of Trial Balance & Financial statement.

c) 1. Accuracy & Speed 2. Scalability 3. Reliability

d) Fixed Asset (i) Land (ii) Building
Current Asset (i) Cash (ii) Debtors
Revenue & surplus (i) Sales (ii) Other Incomes