



## **COMPUTER AND COMPUTERISED ACCOUNTING SYSTEM**

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 introduction 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;
- explain the limitations of a Computer;
- explain the role of computer in accounting;
- differentiate between manual accounting and computerised accounting;
- state the need for computerised accounting;
- describe the basic requirements of computerised accounting.

### **12.1 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.



**Notes**

### **Characteristics of computer**

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

#### **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.

#### **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.

#### **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.

#### **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.



**Notes**

**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.

**Communication**

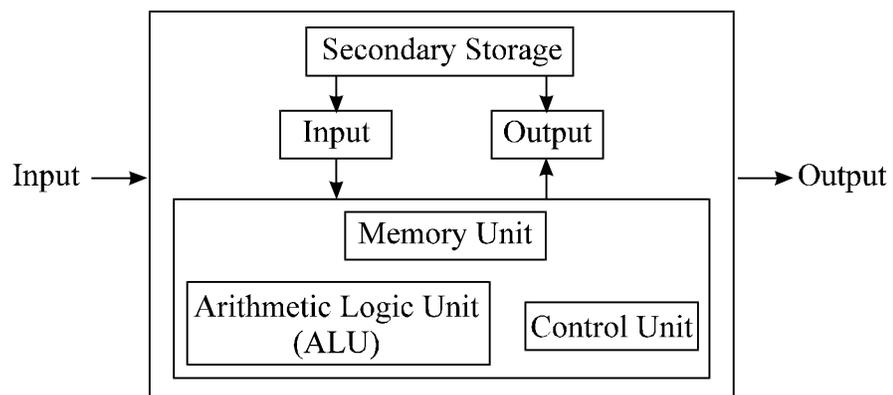
Computers are being used as powerful communication tools. All the computers within an office are connected by cable and it is possible to communicate with others in the office through the network of computer.

**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.

**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:



*Fig. 12.1 Components of computer*

**Notes****● 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
- (b) Memory Unit
- (c) Arithmetic Logic Unit (ALU)

**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.

**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.

**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.

**Notes**

- **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 like monitor also called Visual Display Unit, printer etc.

**INTEXT QUESTIONS 12.1**

Fill in the blanks with correct word/words

1. Computer is a fast data ..... electronic machine.
2. All the computer operations are caused by ..... pulses and travels at the speed of light.
3. A computer is free from ..... and lack of concentration.
4. Computers are being used as powerful ..... tools.
5. The mostly used input devices are keyboard, ..... and scanner.
6. Central Processing Unit is to computer, as the ..... is to human body.
7. The commonly used output devices include ..... printer etc.

**12.2 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.



Notes

### ● 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.

### 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 a 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 insuring 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.



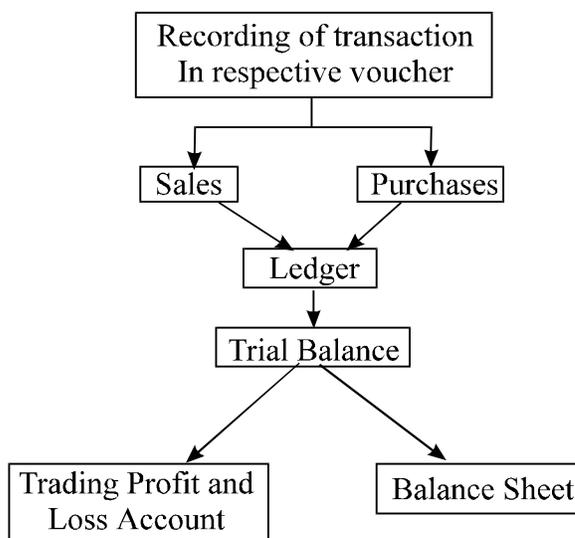
**Notes**

**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 :



*Fig. 12.2 Components of computerised accounting software*

**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.



### Notes

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 Automatic Teller 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.

**Notes****INTEXT QUESTIONS 12.2**

Fill in the blanks with correct word/words :

1. Computer hardware and ..... need to be updated from time to time.
2. The ..... cannot make a decision itself like human beings.
3. .... requires a neat, clean and controlled temperature to work efficiently.
4. The most popular system of recording of accounting transactions is .....
5. The computerised accounting uses the concept of .....
6. Accounting ..... is used to implement a computerised accounting.

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**12.3 NEED AND REQUIREMENTS OF COMPUTERISED 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.

**Notes**

- **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.

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

**Table 12.1** 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.



**Notes**

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 to 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.



**INTEXT QUESTIONS 12.3**

Fill in the blanks with correct word/words :

1. In a manual accounting system, transactions recorded in the books of .....
2. The generation of ledger accounts is not a necessary condition for making ..... in a computerised accounting system.
3. The computerised accounting system is capable of handling ..... of transactions.
4. The ..... accounting system is capable of offering quick and quality reporting.
5. Computerised accounting system offers ..... facility to store transaction data.
6. Computerised accounting system is ..... to the manual accounting system.
7. The computerised accounting is one of the ..... oriented applications



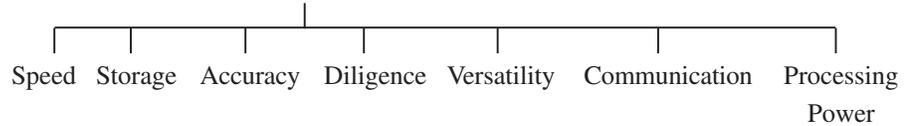
**WHAT YOU HAVE LEARNT**

- 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.

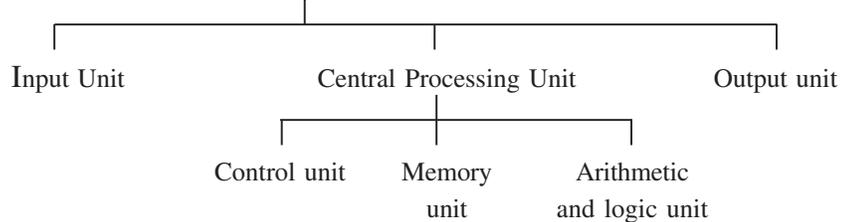


**Notes**

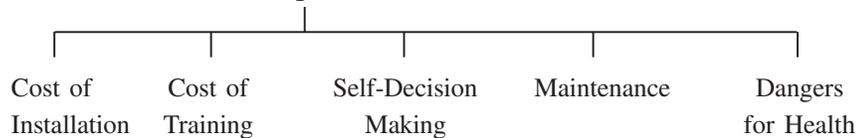
● **Characteristics of computer**



● **Components of Computer**



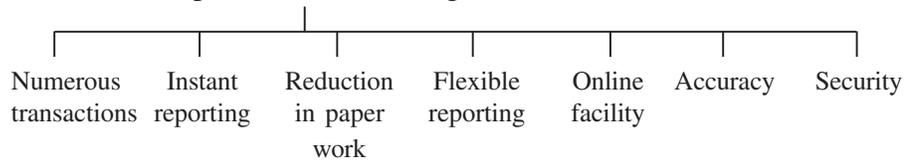
● **Limitations of a Computer**



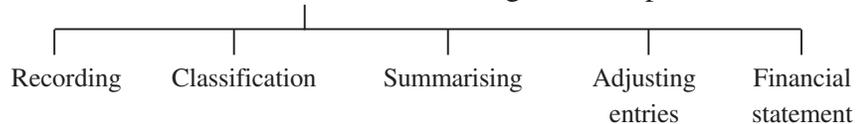
● **Computerised Accounting**

Transaction Processing System (TPS) is the first stage of computerised accounting system.

● **Need for computerised accounting**



● **Difference between manual accounting and computerised accounting**



**TERMINAL QUESTIONS**

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.



**ANSWERS TO INTEXT QUESTIONS**



**Notes**

**Intext Questions 12.1**

- |                  |               |              |
|------------------|---------------|--------------|
| 1. processing    | 2. electrical | 3. tiredness |
| 4. communication | 5. mouse      | 6. brain     |
| 7. monitor       |               |              |

**Intext Questions 12.2**

- |             |              |             |
|-------------|--------------|-------------|
| 1. software | 2. computer  | 3. computer |
| 4. manual   | 5. databases | 6. software |

**Intext Questions 12.3**

- |                   |                  |                 |
|-------------------|------------------|-----------------|
| 1. original entry | 2. trial balance | 3. large number |
| 4. computerised   | 5. online        | 6. superior     |
| 7. database       |                  |                 |