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COMPUTERS IN ACCOUNTING

With the expansion of business, the number of transactions have increased and as a result the manual method of keeping and maintaining records has become unmanageable. With the introduction of computers in business, the manual method of accounting is being gradually replaced. The database technology has revolutionized the accounts department of the business enterprises. In this lesson, we will study about the features of a computer, role of computers in accounting, need of computerized accounting, etc.



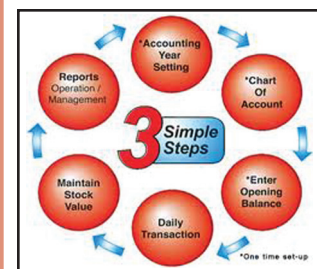
OBJECTIVES

After studying this lesson, you will be able to:

- state the meaning and characteristics of a computer;
- describe the components of a computer;
- explain the limitations of a computer;
- explain the role of computers in accounting;
- differentiate between manual accounting and computerized accounting;
- state the need for computerized accounting and
- describe the basic requirements of computerized accounting.

16.1 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.



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Characteristics of Computer

A computer is better than human being in various aspects and it possesses some characteristics, which are as follows:

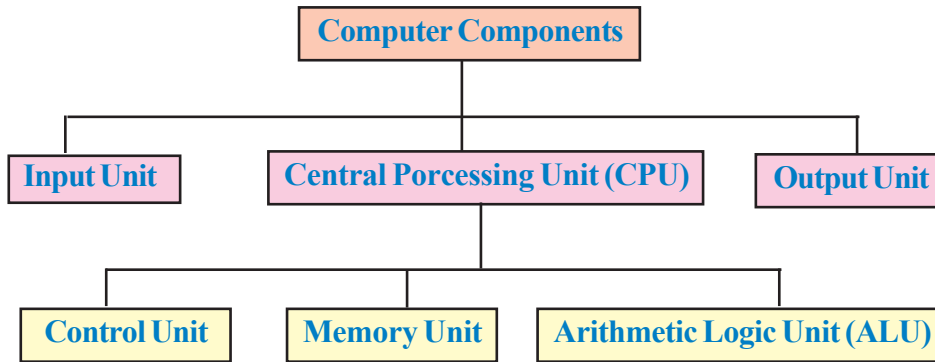
- i) **Speed** : It can access and process data millions times faster than humans can. It can store data and information in its memory, process them and produce the desired results. It is used essentially as a data processor. All the computer operations are caused by electrical pulses and travels at 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 organization, often it is the same computer that is used for diverse purposes such as accounting, playing games, preparing electric bills, sending e-mails 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 computers.
- 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 enterprises, 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.

16.2 COMPONENTS OF A COMPUTER

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



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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 for e.g. 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. This is used to store program, photos, graphics, and data and obey the instructions in program. It is divided into three sub units: i) Control Unit ii) Memory Unit and iii) Arithmetic Logic Unit (ALU).

- i) **Control Unit** : Control Unit controls and co-ordinates the activities of all the components of the computer.
- ii) **Memory Unit** : This unit stores data before being actually processed. The data so stored is accessed and processed according to instruction which are also stored in the memory section of computer well before such data is transmitted to the memory from input devices.
- iii) **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, plotter, printer, speaker, etc.



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INTEXT QUESTIONS 16.1

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.

16.3 LIMITATIONS OF A COMPUTER

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

- i) **High Cost of Installation :** Computer hardware and software need 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 every time there is a change in the existing version.
- ii) **High Cost of Training :** To ensure efficient use of computers in accounting, new versions of hardware and software are introduced. This requires training and cost is incurred to train the personnel.
- iii) **Self Decision Making Not Possible :** The computer cannot make a decision like human beings. It is to be guided by the user, and work only the way it is programmed to function.
- iv) **Costly Maintenance :** Computers require to be maintained properly to help maintain its efficiency. It requires a neat, clean and controlled temperature to work efficiently which results into costly maintenance.
- v) **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.

16.4 APPLICATIONS OF COMPUTER IN ACCOUNTING

The most popular system of recording of accounting transaction 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 advance technology involves various machines capable of performing different

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accounting functions, for example, a billing machine known as computer. 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 into the growth of successful enterprises. A newer version of machine is evolved with increased speed, storage, and processing capacity. A computer to which these were connected operated these machines. As a result, the maintenance of accounting records become more convenient with the computerized accounting.

The computerized accounting uses the concept of databases. For this purpose an accounting software is used to implement a computerized 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, Busy, etc.

Accounting software is used to implement computerized accounting. The computerized accounting is based on the concept of database. It is basic software which allowed 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 applications of computers in accounting:

- i) **Preparation of accounting documents :** Computer helps in preparing accounting documents like Cash memo, Bills, and Invoices etc., and preparing accounting vouchers.
- ii) **Recording of transactions :** Everyday business transactions are recorded with the help of computer software. Logical scheme is implied for codification of accounts and transaction. Every account and transaction is assigned a unique code which put that account in a particular group. This process simplifies the work of recording the transactions.
- iii) **Preparation of Trial Balance and Financial Statements :** After recording of transaction, the data is transferred into ledger accounts automatically by the computer. Trial balance is prepared by the computer to check accuracy of the records. With the help of the trial balance the computer can be programmed to prepare Trading and Profit and Loss Account and Balance Sheet.

16.5 COMPUTERIZED ACCOUNTING

Transaction processing system (TPS) is the first stage of computerized accounting system. The purpose of any TPS is to record, process, validate and store transaction that occur in various functional areas of a business for subsequent retrieval and

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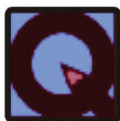


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usage. TPS involves following steps in processing a transaction: Data Entry, Data Validation, Processing and Revalidation, Storage, Information and Reporting. It is one of the transaction processing systems which is concerned with financial transactions only. When a system contains only human resources it is called manual system; when it uses only computer resources, it is called computerized 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.

- i) **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 computerized personal banking system.
- ii) **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 norms 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.
- iii) **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.
- iv) **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.
- v) **Information :** The stored data is processed making use of the Query facility to produce desired information.
- vi) **Reporting :** Reports can be prepared on the basis of the required information content according to the decision usefulness of the report.



INTEXT QUESTIONS 16.2

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 computerized accounting uses the concept of _____.
6. Accounting _____ is used to implement a computerized accounting.

16.6 NEED AND REQUIREMENTS OF COMPUTERIZED ACCOUNTING

The need for computerized accounting arises from advantages of speed, accuracy and lower cost of handling the business transactions. These have been explained below:

- i) **Numerous transactions** : The computerized accounting system is capable of handling large number of transactions with speed and accuracy.
- ii) **Instant reporting** : The computerized accounting system is capable of offering quick and quality reporting because of its speed and accuracy.
- iii) **Reduction in paper work** : A manual accounting system requires large physical storage space to keep accounting records/books and vouchers/documents. The requirements of stationary and books of accounts along with vouchers and documents is directly dependent on the volume of transactions beyond a certain point. There is a need to reduce the paper work and dispense with large volume of books of accounts. This can be achieved by introducing computerized accounting system.
- iv) **Flexible reporting** : The reporting is flexible in computerized accounting system as compared to manual accounting system. The reports of a manual accounting system reveal balances of accounts on periodic basis while computerized accounting system is capable of generating reports of any balance as and when required and for any duration which is within the accounting period.
- v) **On-line facility** : Computerized accounting system offers online facility to store and process transaction data so as to retrieve information to generate and view financial reports.
- vi) **Scalability** : Computerized accounting systems are fully equipped with handling the growing transactions of a fast growing business enterprise. The requirement of additional manpower in Accounts department is



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restricted to only the data operators for storing additional vouchers. There is absolutely no additional cost of processing additional transaction data.

- vii) **Accuracy :** The information content of reports generated by the computerized 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 by many people, especially when the number of transactions to be processed to produce such information and report is quite large.
- viii) **Security :** Under manual accounting system it is very difficult to secure such information because it is open to inspection by any one dealing with the books of accounts. However, in computerized accounting system only the authorized users are permitted to have access to accounting data. Security provided by the computerized accounting system is far superior compared to any security offered by the manual accounting system.

16.7 BASIC REQUIREMENTS OF THE COMPUTERIZED ACCOUNTING SYSTEM

The basic requirements of any computerized accounting system are the following:-

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

16.8 DIFFERENCE BETWEEN MANUAL ACCOUNTING AND COMPUTERIZED ACCOUNTING

Basis	Manual Accounting	Computerized 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.

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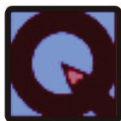
2. Classification	Transactions recorded in the books of original entry are further classified by posting them into ledger accounts.	No such data duplications is made. In order to produce ledger accounts the stored transaction data is processed to appear as classified so that same is presented in the form of report.
3. Summarising	Transactions are summarized to produce trial balance by ascertaining the balances of various accounts.	The generation of ledger accounts is not a necessary condition for preparation of Trial Balance.
4. Adjusting	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 availability of trial balance.	The preparation of financial statements is independent of producing the trial balance.

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INTEXT QUESTIONS 16.3

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 computerized accounting system.
- iii. The computerized accounting system is capable of handling _____ of transactions.
- iv. The _____ accounting system is capable of offering quick and quality reporting.
- v. Computerized accounting system offers _____ facility to store transaction data.
- vi. Computerized accounting system is _____ to the manual accounting system.
- vii. The computerized accounting is one of the _____ oriented applications.

II. Multiple Choice Questions

- i. Which one is not the characteristic of computer?
 - a) Speed
 - b) Artificial Intelligence
 - c) Storage
 - d) Versality

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- ii. Central Processing Unit (CPU) does not include
 - a) Control Unit
 - b) Memory Unit
 - c) Arithmetic Logic Unit
 - d) Output Unit
- iii. The main limitation of computer is
 - a) Speed
 - b) Storage
 - c) Self decision making not possible
 - d) versatility
- iv. Commonly accounting software is
 - a) Tally
 - b) Window
 - c) Easy Books
 - d) Credit Manager
- v. Which one is not the basic requirements of Computerized Accounting System?
 - a) Accounting framework
 - b) Operating Procedure
 - c) Well Organised database
 - d) Bank account

**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 : Speed, storage, accuracy, diligence, versatility, communication, processing, power
- Components of Computer : Input Unit, Central Processing Unit, Output Unit, Control Unit, Memory, Arithmetic Unit and Logic Unit
- Limitations of a Computer : Cost of maintenance, installation, training, dangers for health, self-decision making not possible
- Computerized Accounting : Transaction Processing System (TPS) is the first stage of computerized accounting system.
- Need for computerized accounting : Numerous, instant reductions, flexible, online, accuracy, security, transactions reporting in paper, reporting facility.
- Difference between manual accounting and computerized accounting on the basis of recording, classification, summarizing, adjusting and financial statement

**TERMINAL EXERCISE**

1. What is meant by a Computer?
2. State the characteristics of a Computer.
3. Explain the components of computer.

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4. Explain the limitations of a computer.
5. Explain the role of computers in accounting.
6. Differentiate between manual accounting and computerized accounting system.
7. Enumerate the basic requirements of any computerized accounting system.
8. Briefly explain the applications of computerized accounting.
9. Describe the stages of transaction processing system.
10. Why is computerized accounting needed? Explain.



ANSWER TO INTEXT QUESTIONS

- 16.1** (i) Processing (ii) Electrical (iii) Tiredness (iv) Communication
(v) Mouse (vi) Brain (vii) Monitor
- 16.2** (i) Software (ii) Computer (iii) Computer (iv) Manual
(v) Databases (vi) Software
- 16.3 I.** (i) Original entry (ii) Trial balance (iii) Large number
(iv) Computerized (v) Online (vi) Superior
(vii) Database
- II.** (i) b (ii) d (iii) c (iv) a (v) d

ACTIVITY FOR YOU

- Visit a shop or business organisation near your residence where computer are used to maintain accounts and note ten points as benefits of using computers in accounting than manual accounting.

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