

Computers in Accounting

CBSE · Class 11 · Accountancy — exam notes

This chapter explains how a computer works as a data-processing system and how its speed and accuracy are used to automate the accounting process. It compares manual and computerised accounting, introduces the Accounting Information System (AIS), and surveys the types of accounting software (ready-to-use, customised and tailored), while stressing that the accountant's understanding of accounting principles remains essential.

Key terms & definitions

Computer

An electronic device that accepts data and instructions as input, processes the data according to those instructions, stores it, and produces meaningful information as output.

Data

Raw, unprocessed facts and figures (for example, a list of sale amounts) that have little meaning on their own until they are processed.

Information

Processed, organised data that is meaningful and useful for making decisions (for example, the total monthly sales figure derived from individual entries).

Hardware

The physical, tangible parts of a computer system that can be touched, such as the input unit, CPU, storage devices and output unit.

Software

The set of programs and instructions that tell the hardware what to do; it is intangible and is broadly classified into system software and application software.

CPU (Central Processing Unit)

The 'brain' of the computer that processes data; it contains the Arithmetic Logic Unit (ALU) for calculations and comparisons and the Control Unit (CU) that directs all operations.

Database

An organised, structured collection of related data stored together so that it can be accessed, linked and managed efficiently.

DBMS (Database Management System)

Software that creates, stores and manages a database; it links related records, enforces consistency rules, and prevents contradictions in the stored data.

Accounting Information System (AIS)

A system that collects financial data, processes it into accounting information, and reports it to users such as management, owners, investors and tax authorities for decision-making.

Computerised Accounting System

An accounting system that records, stores and processes financial transactions using a computer and accounting software, built on a database and the rules of double-entry book-keeping.

Ready-to-use (Ready-made / Pre-packaged) Software

Standardised accounting software developed for sale to the general market and not built for any one user, suitable for small organisations with a low volume of transactions and a limited number of users (e.g. Tally, Busy).

Customised Software

Ready-to-use software in which changes are made to suit the specific requirements of a particular user; its cost of installation and maintenance is higher, and it is suited to medium and large organisations.

Tailored (Tailor-made) Software

Accounting software designed and developed from scratch to meet the unique, specific needs of a large organisation; it is not available off the shelf, is the most expensive, and needs specialised training.

Meaning and Elements of a Computer System

- A computer is an electronic device that takes in data and instructions (input), processes them, stores them, and gives out useful results (output).
- A computer system is made up of six elements that work together: Hardware, Software, People (liveware), Procedures, Data, and Connectivity.
- Hardware = the physical machinery; Software = the programs that run it; People = users and operators who control it; Procedures = the rules/steps followed to operate it; Data = the raw facts fed in; Connectivity = the way computers are linked (e.g. through a network).
- Data is raw and unprocessed; once it is processed and made meaningful it becomes information that supports decisions.

Components / Units of a Computer (Hardware)

- Input Unit: accepts data and instructions from the user and converts them into a form the computer understands (e.g. keyboard, mouse, scanner).
- Central Processing Unit (CPU): the brain that processes data. It has two main parts — the Arithmetic Logic Unit (ALU), which performs calculations and logical comparisons, and the Control Unit (CU), which directs and coordinates all operations.
- Memory / Storage Unit: holds data, instructions and results. Primary memory (RAM) is temporary and works while the computer is on; secondary storage (hard disk, etc.) keeps data permanently.
- Output Unit: gives the processed results to the user in a readable form (e.g. monitor for soft copy, printer for hard copy).
- These units follow the Input → Process → Store → Output cycle, which is the basic working flow of every computer.

Capabilities (Advantages) of a Computer

- Speed: a computer processes huge volumes of transactions in fractions of a second, far faster than any human.
- Accuracy: it performs calculations without arithmetic mistakes, provided the input and instructions are correct.
- Reliability / Consistency: it gives the same result every time for the same input and does not tire or lose concentration.
- Versatility: the same machine can do many different jobs — billing, payroll, GST returns, inventory — by changing the software.
- High Storage Capacity: it can store very large amounts of data in a small space and retrieve it instantly.
- Diligence: unlike humans, a computer does not suffer fatigue, boredom or loss of attention even after long hours of work.

Limitations of a Computer

- No intelligence of its own: a computer has no common sense; it only follows the instructions given to it (it cannot think or judge).
- Cannot detect logical/judgement errors: it processes wrong instructions just as faithfully as right ones — the GIGO rule, 'Garbage In, Garbage Out'.
- No decision-making: it cannot decide which account a transaction belongs to; the accountant must make that judgement.
- No feelings or instincts: it cannot use experience or intuition the way a human accountant can.
- Dependence on environment: it needs electricity, maintenance and protection from viruses, dust and damage to keep working.

Automation of the Accounting Process

- Automation means using a computer and software to carry out the routine, repetitive steps of accounting automatically instead of by hand.
- When one transaction is entered, the software simultaneously updates all the accounts affected — debits one account, credits another, updates GST, stock and balances at once.
- The double-entry principle is not abandoned; it is built into the software's logic so that debits always equal credits and the books can never go out of balance.
- Automation removes arithmetic errors and saves time, but it does not remove the need to choose the correct accounts — that judgement still rests with the user.
- The spread of GST (from July 2017) made automation almost compulsory, as digital returns and invoice-level tax computation are extremely hard to do manually at scale.

Manual vs Computerised Accounting

- Recording: in manual accounting transactions are written by hand in the journal and ledger; in computerised accounting they are entered once and posted automatically.
- Speed: manual processing is slow; computerised processing is almost instant.
- Accuracy: manual work is prone to arithmetic errors; the computer is arithmetically accurate (if input is correct).
- Calculations / Totals: balances and totals are worked out by hand in manual systems but automatically in computerised systems.
- Trial Balance & Final Accounts: prepared manually as separate steps in a manual system; generated instantly at the click of a button in a computerised system.
- Storage & Retrieval: paper records take space and are hard to search; computerised records are compact and instantly searchable.
- Cost & Reliability: manual systems have low setup cost but high effort; computerised systems need investment in hardware/software/training but are more reliable for large volumes.
- Backup: a manual ledger has no easy backup; computerised data can be backed up and restored, but is exposed to risks like power failure and viruses.

Accounting Information System (AIS)

- An AIS is a system that gathers financial data, processes it into accounting information, and reports it to the people who need it.
- It is one of the most important sub-systems of the larger Management Information System (MIS) of a business.
- It works in three stages: input (collecting source data such as invoices and vouchers), processing (recording, classifying and summarising), and output (financial statements and reports).
- Its users include internal parties (management, owners, employees) and external parties (investors, lenders, suppliers, customers, government and tax authorities).
- Examples of AIS sub-systems are the cash system, sales/receivables system, purchase/payables system, payroll system and inventory system.

Database and DBMS in Accounting

- At the heart of every computerised accounting system is a database — an organised store of all the firm's financial data, like a smart filing cabinet whose drawers are all linked.
- A DBMS (Database Management System) is the software that manages this database; it stores data safely, links related records, and prevents contradictions.
- Because records are linked, recording a payment automatically reduces the matching debtor's balance — there is no need to update two places by hand.
- A DBMS is fundamentally different from a paper ledger: a ledger is static and updated entirely by hand, whereas a DBMS is dynamic, self-linking and able to enforce consistency rules.
- Most Indian accounting packages, such as Tally, are built on this database foundation.

Types of Accounting Software

- Ready-to-use (ready-made / pre-packaged) software: standard packages sold off the shelf to the general market; low cost of installation, quick to install and easy to learn; best suited to small organisations with a low volume of transactions and a limited number of users (e.g. Tally, Busy). Limitations: little scope for modification and a low level of data secrecy.
- Customised software: ready-to-use software that is modified or configured to suit the particular needs of a specific business; cost of installation and maintenance is higher, the level of data secrecy is better, and it supports more users; suited to medium and large organisations.
- Tailored (tailor-made) software: software designed and developed from scratch for the unique requirements of one large organisation; not available off the shelf, most expensive, needs specialised staff and detailed training, but offers robust data secrecy and authentication; suited to large businesses with complex, specific needs.
- Choice of software depends on the size of the business, the nature and volume of transactions, the cost and budget, the level of secrecy/security required, and the need for adaptability and expert support.

Need for Computers / Why Accounting Got Computerised

- Large volume of transactions in modern businesses cannot be handled accurately by hand.
- Need for speed, accuracy and instant reports for timely decisions.
- Statutory compliance — GST returns, e-invoicing and digital filing require data in specific electronic formats.
- Better storage, security (through passwords and access rights) and easy retrieval of records.
- Integration of accounting with other functions like inventory, payroll and banking.

Limitations of a Computerised Accounting System (and the Role of Controls)

- Heavy cost of installation, training and periodic upgrading of hardware and software.
- Disruption and resistance: shifting from manual to computerised systems can disturb staff and needs retraining.
- Health and system risks: long screen hours affect users; data can be lost through power failure, virus attacks or hardware faults.
- The computer cannot judge truthfulness — a person with valid access can record fake invoices or delete entries, and the balanced entry will still pass.
- Therefore internal controls, segregation of duties (no one person handles all steps), regular audits, backups and access restrictions remain essential even after computerisation.

Formulas & formats

- [] (this is a theory chapter)

Important questions & model answers

3 marks Define a computer and name the six elements of a computer system.

- A computer is an electronic device that accepts data and instructions (input), processes them, stores them, and produces meaningful information (output).
- The six elements of a computer system are: Hardware, Software, People (liveware), Procedures, Data, and Connectivity.
- Hardware is the physical machinery and Software is the set of programs; People operate the system following set Procedures; Data is the raw input that is processed; Connectivity links computers together (e.g. a network).

4 marks Explain the main components (units) of a computer along with their functions.

- Input Unit: accepts data and instructions from the user and converts them into machine-readable form (e.g. keyboard, mouse, scanner).
- Central Processing Unit (CPU): the brain that processes data; its Arithmetic Logic Unit (ALU) does calculations and comparisons and its Control Unit (CU) directs all operations.
- Memory / Storage Unit: stores data, instructions and results — primary memory (RAM) is temporary while secondary storage (hard disk) is permanent.
- Output Unit: presents the processed results to the user (e.g. monitor for soft copy, printer for hard copy).
- Together they follow the Input → Process → Store → Output cycle.

4 marks State any four capabilities (advantages) of a computer.

- Speed: processes very large volumes of data in fractions of a second.
- Accuracy: performs calculations without arithmetic errors when input and instructions are correct.
- Reliability and consistency: gives the same correct result every time without tiring.
- High storage capacity: stores huge amounts of data in little space and retrieves it instantly.
- Diligence: works continuously without fatigue, boredom or loss of attention (any four points may be written).

4 marks Discuss the limitations of a computer in accounting work.

- No intelligence of its own: it has no common sense and only follows the instructions given to it.
- GIGO — Garbage In, Garbage Out: it processes wrong instructions as faithfully as right ones, so incorrect input gives incorrect output.
- No decision-making: it cannot judge which account a transaction belongs to; that judgement rests with the accountant.
- No feelings or instincts: it cannot apply experience or intuition the way a human can.
- Dependence: it needs electricity, maintenance and protection from viruses and damage to keep working.

4 marks Distinguish between manual accounting and computerised accounting (any four points).

- Recording: manual — transactions are written and posted by hand; computerised — entered once and posted to all accounts automatically.
- Speed: manual — slow; computerised — almost instant.
- Accuracy: manual — prone to arithmetic errors; computerised — arithmetically accurate if input is correct.
- Trial balance and final accounts: manual — prepared as separate steps by hand; computerised — generated instantly at the click of a button.
- Storage and retrieval: manual — bulky paper records, hard to search; computerised — compact and instantly searchable (any four).

6 marks What is an Accounting Information System (AIS)? Explain its stages and users.

- Meaning: an AIS is a system that collects financial data, processes it into accounting information, and reports it to the users who need it for decision-making.
- It is an important sub-system of the wider Management Information System (MIS) of an organisation.
- Stage 1 — Input: source data such as invoices, vouchers and receipts is collected.
- Stage 2 — Processing: data is recorded, classified and summarised following accounting rules.
- Stage 3 — Output: financial statements and reports are produced.
- Internal users: management, owners and employees. External users: investors, lenders, suppliers, customers, and government/tax authorities.
- Examples of its sub-systems: cash, sales/receivables, purchase/payables, payroll and inventory systems.

6 marks Explain the different types of accounting software a business may choose.

- Ready-to-use (ready-made / pre-packaged) software: standard packages sold off the shelf; low installation cost, quick to install and easy to learn; suited to small organisations with a low volume of transactions and few users (e.g. Tally, Busy); limitations — little scope for modification and low data secrecy.
- Customised software: ready-to-use software modified or configured to suit a particular business; higher cost of installation and maintenance, better data secrecy and more training; suited to medium and large organisations.
- Tailored (tailor-made) software: built from scratch for the unique needs of one large organisation; not sold off the shelf, most expensive, needs specialised staff and detailed training, with robust data secrecy; suited to large businesses with complex requirements.
- Factors in the choice: size of the business, volume and nature of transactions, cost/budget, level of secrecy/security needed, and need for flexibility and expert support.

4 marks 'Computerised accounting does not remove the need to understand accounting principles.' Explain.

- Software enforces only the mechanical rule that debits must equal credits; it cannot decide which accounts a transaction should affect.
- If a payment to a supplier is wrongly posted to Rent Expense instead of Creditors, both sides still balance and the software accepts it without warning.
- The trial balance still tallies, yet Rent Expense is overstated and the creditor remains shown as unpaid — only accounting knowledge catches this.
- Concepts such as Accrual, Matching and Dual Aspect are built into the software, but the user must understand them to enter data correctly (GIGO).
- Hence the accountant's judgement about the right account and matching entries to source documents remains irreplaceable.

3 marks Why has accounting become computerised in modern businesses? Give any three reasons.

- The large volume of transactions in modern businesses cannot be recorded accurately and quickly by hand.
- Businesses need speed, accuracy and instant reports for timely decision-making.
- Statutory compliance such as GST returns and e-invoicing requires data in specific digital formats, making software almost compulsory (other valid reasons: better storage, security and integration with inventory/payroll).

3 marks How does a DBMS differ from a manual ledger?

- A manual ledger is static — every balance and link must be written and updated by hand.
- A DBMS is dynamic — it automatically links related records, so recording a payment instantly reduces the matching debtor's balance.
- A DBMS also enforces consistency rules and prevents contradictions (e.g. the same customer cannot show two different balances), which a paper ledger cannot do.

Exam tips

- For 'distinguish between' questions, always answer in a two-column point-wise format (Basis | Manual | Computerised) — examiners award marks per valid point of difference.
- Remember GIGO — 'Garbage In, Garbage Out' — it is the one-line key to questions on a computer's limitations and on why accounting knowledge still matters.
- Capabilities and limitations of a computer are frequent 3-4 mark questions; learn at least four crisp points of each.
- When asked about types of software, use the NCERT terms Ready-to-use / Customised / Tailored, mention an example (Tally for ready-to-use) and at least one limitation/suitability for each type to score full marks.
- Do not confuse the two parts of the CPU: ALU does the calculations/comparisons, CU controls and coordinates.
- For AIS questions, clearly bring out the three stages (input → processing → output) and list both internal and external users.

Quick revision

- A computer follows the cycle: Input → Process → Store → Output; six elements = Hardware, Software, People, Procedures, Data, Connectivity.
- CPU = ALU (calculations/logic) + CU (control). Input takes data in; Output gives results; Memory stores them.
- Capabilities: speed, accuracy, reliability, versatility, storage, diligence. Limitations: no intelligence, GIGO, no decisions, no feelings, needs power/maintenance.
- Computerised accounting = same double-entry logic as manual, only faster and arithmetic-error-free; it does NOT choose accounts for you.
- Manual vs computerised: differ on recording, speed, accuracy, trial balance/final accounts, storage, cost and backup.
- AIS collects → processes → reports financial information to internal and external users; it is a sub-system of MIS.
- Software types: Ready-to-use (cheap, standard, small firms, e.g. Tally) → Customised (modified, medium/large firms) → Tailored (built from scratch, costly, large firms).
- Even with computers, internal controls, segregation of duties and audits are needed because software checks balance, not truth.