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Short Notes — IT Systems

BTEUP Diploma • 1st Semester (First Year — Common Curriculum, All 41 Branches) •
Short Notes
Session 2026-27

Short Revision Notes — prepared by KAMALDNP Academy from the official BTEUP 2026-27 syllabus. This is NOT a BTEUP board paper or publication.

These short notes cover the four units of **IT Systems** from the BTEUP 2026-27 first-semester syllabus, common to all diploma branches. Each unit gives tight, exam-focused points on every topic named in the syllabus — what each part or tool is, what it does and the differences examiners usually ask about.

Use these notes for **revision**: read a unit, cover the page and try to recall the main points, then attempt the likely question at the end of the unit. These are revision notes prepared by KAMALDNP Academy, not a BTEUP publication, so always match your final preparation with the official syllabus and your class notes.

Computer Fundamentals

Topics: Parts of a computer; input and output devices; memory and storage; types of software.

Parts of a computer

A **computer** is an electronic machine that takes data as input, processes it according to instructions (a program) and gives useful information as output. Its work is often summarised as the **input - process - output cycle**.

Main parts of a computer:

- **Input unit** — devices that feed data and instructions into the computer.
- **Central Processing Unit (CPU)** — the "brain" of the computer. It has two parts: the **Control Unit (CU)**, which directs and coordinates all operations, and the **Arithmetic Logic Unit (ALU)**, which performs calculations and logical comparisons.
- **Memory unit** — stores data, instructions and results during and after processing.
- **Output unit** — devices that present the processed results to the user.

All parts are connected through the motherboard and work together under the control of the CPU. A neat labelled block diagram — input unit, CPU (CU + ALU), memory unit, output unit — is the standard way to present this answer.

Input and output devices

Input devices send data and instructions into the computer; **output devices** present processed results to the user.

Common input devices:

- **Keyboard** — types text, numbers and commands.
- **Mouse** — points, clicks and selects items on the screen.
- **Scanner** — converts a printed page or photo into a digital copy.
- **Microphone** — inputs voice and sound.
- **Web camera** — inputs live images and video.

Common output devices:

- **Monitor** — displays text, images and video (soft copy).
- **Printer** — produces output on paper (hard copy).
- **Speakers / headphones** — output sound.
- **Projector** — displays the screen image on a large surface.

Some devices do both jobs — a **touch screen** takes input by touch and also displays output, and a headset combines a speaker with a microphone.

Memory and storage

Memory holds data and instructions while the computer is working; **storage** keeps data permanently for future use.

Primary memory:

- **RAM (Random Access Memory)** — temporary working memory; fast, but **volatile**, so its contents are lost when the power is switched off.
- **ROM (Read Only Memory)** — permanent memory holding start-up instructions; **non-volatile** and normally not changed by the user.

Secondary storage: hard disk (HDD), solid state drive (SSD — faster, no moving parts), pen drive, memory card and optical discs (CD/DVD). Storage capacity is much larger than RAM but access is slower.

Units of memory: 1 byte = 8 bits; 1 KB = 1024 bytes; then MB, GB and TB, each step 1024 times the previous one. A cache memory, smaller and faster than RAM, sits between the CPU and RAM to speed up processing.

Types of software

Software is the set of programs that tells the hardware what to do. A computer without software can do nothing. Software is of two main types:

1. System software — controls and manages the computer itself.

- **Operating system** (Windows, Linux, Android) — runs the computer and lets other programs work.
- **Utility programs** — help in maintenance, e.g. antivirus, file compression, backup tools.
- **Language translators** — compilers and interpreters that convert programs into machine language.

2. Application software — does a specific task for the user, e.g. word processors (documents), spreadsheets (calculation), presentation software, web browsers, media players and accounting packages.

Key difference: system software works in the background for the machine; application software works in front for the user. Application software cannot run without system software, especially the operating system.

Likely question: Describe the main parts of a computer system with the help of a block diagram and state the function of each part.

Operating Systems

Topics: What an operating system does; files and folders; basic commands.

What an operating system does

An **operating system (OS)** is system software that acts as an interface between the user and the computer hardware. It starts when the computer is switched on (booting) and keeps working in the background until shutdown. Examples: Windows, Linux, macOS on computers; Android and iOS on phones.

Main functions of an operating system:

- **Process management** — runs programs and shares CPU time between them.
- **Memory management** — gives memory space to programs and frees it when they close.

- **File management** — creates, stores, organises and protects files and folders.
- **Device management** — controls input and output devices through drivers.
- **User interface** — provides the screen (icons and windows in a GUI) through which the user gives commands.
- **Security** — user accounts, passwords and protection from unauthorised access.

Without an OS, every program would have to control the hardware itself, and the user would have to work in machine language.

Files and folders

Data on a computer is organised as **files** and **folders**. A **file** is a stored collection of related data — a document, photo, song or program. Every file has a **name** and usually an **extension** that shows its type: .docx (Word document), .xlsx (spreadsheet), .jpg (image), .mp3 (audio), .pdf (document).

A **folder** (directory) is a container that holds files and other folders (sub-folders), so that thousands of files can be arranged in a tree-like order instead of one long list.

Common file and folder operations:

- Create, rename, open and delete.
- Copy and paste (makes a duplicate) / cut and paste (moves the file).
- Search a file by name, type or date.
- Restore deleted files from the Recycle Bin; Shift+Delete removes them permanently.

Good practice: give clear names, arrange files in subject-wise folders and keep backup copies of important files.

Basic commands

Basic commands are the everyday operations used to control the computer. Most are done with the mouse in Windows, but every user should know the common actions and shortcut keys.

Everyday operations: starting and shutting down the computer properly, opening and closing programs, creating and saving files, installing and removing a program, changing basic settings (wallpaper, date and time, volume) and connecting devices such as a printer or pen drive.

Useful keyboard shortcuts:

- **Ctrl + C** copy, **Ctrl + X** cut, **Ctrl + V** paste.
- **Ctrl + S** save, **Ctrl + P** print, **Ctrl + Z** undo.
- **Ctrl + A** select all, **Alt + Tab** switch between open windows.
- **Windows key + D** show the desktop.

In a command-line interface, typed commands do the same work — for example, in the Windows Command Prompt, `dir` lists files, `cd` changes the folder, `md` makes a new folder and `del` deletes a file. Always shut down through the proper command, not by cutting the power, to avoid file damage.

Likely question: What is an operating system? Explain any four functions of an operating system.

Internet & Email

Topics: Browsers and search; email; safe internet use; online services.

Browsers and search

The **internet** is a worldwide network of computers. The **World Wide Web (WWW)** is the collection of websites on it, viewed through a **browser** — a program such as Chrome, Edge or Firefox that opens web pages. Every website has an address called a **URL** (e.g. <https://kamaldnp.com>).

Searching the internet: a **search engine** (such as Google or Bing) finds pages matching the words you type, called **keywords**.

- Type clear, specific keywords; use quotes for an exact phrase.
- Check more than one result; prefer official and trusted websites.
- Note the date of the page — old information may be outdated.

Basic terms: a **web page** is a single page; a **website** is a set of related pages; a **hyperlink** is a clickable link to another page; **downloading** copies data to your device and **uploading** sends data from it. A home page is the starting page of a website.

Email

Email (electronic mail) is a service for sending messages, documents and photos over the internet. Every user has a unique **email address** in the form `username@domain`, for example `name@example.com`. Popular services include Gmail, Outlook and Yahoo Mail.

Parts of an email:

- **To** — the main receiver's address.
- **Cc** (carbon copy) — others who receive a copy openly; **Bcc** — copy is hidden from others.
- **Subject** — one short line stating the purpose.
- **Body** — the message itself; keep it clear and polite.
- **Attachment** — a file sent with the message.

Common folders: Inbox (received mail), Sent, Drafts (unsent, saved), Spam (junk mail) and Trash. Advantages of email: fast, cheap, reaches anywhere, keeps a written record. Always check the receiver's address and the attachment before pressing Send.

Safe internet use

The internet is useful but has risks — fraud, viruses and theft of personal data. **Safe internet use** means following simple precautions every time you go online.

- **Passwords:** use a long password with letters, numbers and symbols; use different passwords for different accounts; never share passwords or OTPs with anyone — no genuine bank or company asks for them.
- **Suspicious messages:** do not click links or open attachments in unknown emails and messages; such **phishing** attempts copy real websites to steal your details.
- **Safe sites:** check for https and the lock symbol before entering personal or payment details.
- **Downloads:** take software and files only from trusted sources; keep an updated antivirus.
- **Privacy:** share limited personal information on social media, check app permissions, and log out from shared computers.

If money is lost in online fraud, report it immediately to the bank and on the national cyber crime helpline/portal.

Online services

Online services are tasks done through websites and apps instead of visiting an office. Common services a student should know:

- **Information and education** — official result and admission portals, online forms, e-learning platforms, digital libraries.
- **Communication** — email, messaging apps, video calling and online classes or meetings.
- **Banking and payments** — net banking, mobile banking and UPI payments; checking balance and paying bills online.
- **Government services** — applying for certificates and documents, scholarship and exam forms, railway and bus ticket booking.
- **Commerce and daily needs** — online shopping, food delivery, recharge and ticket booking.
- **Storage** — cloud storage services keep files online so they can be opened from any device.

Advantages: available 24×7, saves travel and time, gives instant confirmation and a digital record. Safe use — official websites or apps only, and never on a shared computer for banking — is part of using these services correctly.

Likely question: Write a short note on safe use of the internet. What precautions should a user take while working online?

Office Tools

Topics: Word processing; spreadsheets; presentations.

Word processing

Word processing means creating and editing documents on a computer using software such as Microsoft Word, LibreOffice Writer or Google Docs. Applications include letters, applications, resumes, reports, notices and project work.

Main features:

- **Typing and editing** — insert, delete, copy, cut, paste; undo and redo.
- **Formatting** — font type, size, bold, italic, underline, colour; paragraph alignment (left, centre, right, justify), line spacing and bullets/numbering.
- **Page setup** — margins, page size and orientation (portrait/landscape); header, footer and page numbers.
- **Tables and pictures** — insert tables, images, shapes and symbols into the document.
- **Checking tools** — spell check, grammar check, word count, find and replace.
- **Finishing** — save (Ctrl+S), print preview and print; save as PDF for sharing.

Advantage over a typewriter: a document can be corrected, reformatted, stored and printed any number of times without retyping.

Spreadsheets

A **spreadsheet** is a program (Microsoft Excel, LibreOffice Calc, Google Sheets) that organises numbers and text in a grid of **rows** (numbered 1, 2, 3...) and **columns** (lettered A, B, C...). Each box is a **cell**, identified by an address such as B4 (column B, row 4). A file is a workbook containing one or more worksheets.

Main uses:

- **Calculations** — marksheets, salary sheets, bills, budgets and fee records.
- **Formulas** — instructions starting with =, e.g. =A1+B1; cell addresses make results update automatically when values change.
- **Functions** — ready-made formulas: SUM (total), AVERAGE, MAX, MIN and COUNT.
- **Sorting and filtering** lists of data.
- **Charts** — column, line and pie charts that show data visually.

The biggest advantage: change one value and every dependent result is recalculated instantly, which is why spreadsheets are used wherever numbers are handled.

Presentations

Presentation software (Microsoft PowerPoint, LibreOffice Impress, Google Slides) prepares a set of **slides** used to explain a topic to an audience with the help of a projector or screen. It is used for class seminars, project reports, training and office meetings.

Main features:

- **Slides and layouts** — title slide, title-with-content, two-column and other ready layouts.
- **Content** — short text points, pictures, tables, charts, audio and video.
- **Design** — ready themes, background, font and colour schemes for a uniform look.
- **Effects** — animation (movement of objects on a slide) and transition (effect between slides).
- **Slide show** — full-screen display, moved forward with a click or arrow key; notes can be added for the speaker.

Rules of a good presentation: one idea per slide, few words in large fonts, simple clear visuals, and the speaker explaining — not reading — the slides. Keep effects limited so the topic, not the decoration, gets attention.

Likely question: What is a spreadsheet? Explain any four uses of a spreadsheet program in office work, naming the common functions used.

Quick Revision — One Line Each

- CPU = control unit + ALU; it processes all data and controls all parts.
- Input devices take data in (keyboard, mouse, scanner); output devices give results out (monitor, printer).
- RAM is volatile: its contents are lost when the power goes off; ROM is non-volatile.
- Storage order: bit < byte < KB < MB < GB < TB; 1 byte = 8 bits.
- System software runs the computer (operating system); application software does user tasks (word processor).
- The operating system manages files, memory, devices, processes and security.
- A file has a name and an extension that shows its type: .docx, .xlsx, .jpg, .pdf.
- Email address format: username@domain, e.g. name@example.com; Cc = copy to others, Bcc = hidden copy.
- Strong password: long, mixed characters, different for each account; never share OTPs with anyone.
- In a spreadsheet, a formula starts with '='; SUM, AVERAGE, MAX, MIN are common functions.
- A presentation slide works best with one idea, few words and clear visuals.
- Save your work regularly (Ctrl+S) and keep a backup copy of important files.

