MODULE 01: USING A COMPUTER(ICT-01-01)

- ✓ A **computer** is an electronic device/a machine that changes information from one form into another by performing four basic actions as input, processing, output and storage.
- ✓ These four actions make up the information processing cycle.
- ✓ A computer turns raw data into organized information that people use.
- ✓ **Data** is a collection of unprocessed items which include text, numbers, images, audios and videos.
- ✓ **Information** is the processed/organized data that provides meaning and use to people.
- ✓ A computer processes information by following a set of instructions, called a **program** or **software**.
- ✓ **Input** is the raw information, or data that is entered into a computer such as letters, numbers, images, videos and audios.
    - **Bits of data**: data is entered into a computer in a coded language. The building blocks of that language are units called **bits** or a **bit** (binary digit) which can only have wo possible values 0 or 1.
    - **Bits** into **Bytes**: letters, numbers or pictures are entered into a computer as a combination of bits, or 0s and 1s. The bits are combined into groups of eight called a **byte**. i.e. letter A is coded as 01000001 and 1 is 00110000.
- ✓ **Processing**.
    - **Coded instructions**: this is where the computer works with the data depending on the instructions given to it.
      The instructions are also written using a combination of 0s and 1s.
      They might tell the computer to add two numbers or multiply two numbers.
    - **Speed of processing**: computers process data very rapidly, performing millions of operations every second.
- ✓ **Output** this is a stage where the computer decides what to do with the processed data.
    - At output, the computer displays the results of the processing stage. A computer takes the bytes and turns them back into a form a user can understand such as images on the screen or sound in the speakers.
- ✓ **Storage:** at this stage the computer stores the information, without storage all the work you do would be lost.
    - Computers have a temporary memory that is used during the processing stage and is lost when the computer is turned off.
    - Computers also have a permanent storage form which ensures access to information over and over.

01: CONNECTING COMPUTER COMPONENTS

- ✓ A computer contains hardware components (physical parts) that does the input, processing, output and storage activities.
- ✓ These components are; the Monitor, Keyboard, Mouse, System unit.
- ✓ **Monitor;** Displays text, images and videos on the screen.
- ✓ **Keyboard;** contains keys that are pressed to enter data into the computer.

- ✓ **Mouse;** this is a small handheld device which controls movement of a small symbol on the screen, called **the pointer** and helps to make selections from the screen.
- ✓ **System unit**; this is a case or box that contains the electronic components of the computer, that are used to process and store data. Here are its components.
    - **Processing devices:** The Central Processing Unit (CPU)or the computer's brain is the device that processes data.
      The **CPU** is small, thin piece of silicon attached to a circuit board or mother board which has a number of tiny electrical circuits.
      The **CPU** Interprets and carries out the basic instructions that operates a computer.
    - **Primary storage:** RAM (Random Access Memory) a device that stores data and instructions while the computer is working**.**
      There is volatile **RAM** that keeps its contents only when power is supplied to it and non-volatile **RAM** also **ROM** (Read-Only Memory) that needs power to change its contents but data stored in it stays there even if power is switched off.
      Random access memory: Memory that can be read from or written to.
    - **Secondary storage:** devices that allow a permanent data storage. i.e.
      Hard drives: these use a stack of disk platters to store large amounts information permanently.
      Floppy disk drives: these record data on removable floppy disks.
      CD-ROM /DVD-ROM drives: are storage devices that can read or write data on CDs or DVDs.
    - **Heat sink**: this is a component with fins that cools the processor.
    - **Mother board/circuit board:** The mother board act like a **"hub"** of the computer where everything else plugs into.
    - **Power supply:** The power supply is the component of the system unit that converts the wall outlet AC power into DC power.
    - **System fan:** this keeps the power supply cool.

Computer Peripherals

- ✓ **Peripheral devices** are devices that adds function to computer sets or hardware that is separate but can be connected to the case. They include speakers, printers, scanners, digital cameras and memory sticks.
- ✓ **Speakers:** these devices convert electronic signals into sound.
- ✓ **Printers**: these devices produce a permanent hard copy of information on paper.
- ✓ **Scanners:** this converts printed material such as text and pictures into a format that the computer can use or understand.
- ✓ **Digital camera:** a camera that captures photographs in digital memory.
- ✓ **Memory stick;** a removable flash memory card format commonly used in digital cameras and smart phones.

Computer Interface.

- ✓ **An interface** is a point of interconnection between two entities.

or

- ✓ A shared boundary across which two separate components of the computer system exchange information.
- ✓ There are three common interface types: hardware interface, software interface and user interface.

❖ **Hardware interface:** This consists of cables, connectors and ports that links devices.

- ➢ **Ports:** a port is a point at which a peripheral attach to or communicates with a system unit so that the peripheral can send data to or receive information from the computer.
  A **connector** joins a cable to a port.

Types of Ports

- ✓ **Serial ports.**
  - These Send and receive one bit at a same time via single wire pair. i.e. they connect computers to modems for internet access.
- ✓ **Parallel ports.**
  - These send multiple bits at a same time over several wires, they move data in groups.
  - These ports only send, they don't receive i.e. connecting printers, projector to computers.
- ✓ **Multiple device ports.**
  - Such as Small Computer Systems Interface (SCSI) and universal serial bus (USB) ports, connect several peripherals to a computer at one time.
  - They move data faster than serial ports.

- ➢ **Cables:** peripherals are connected to computers by the use of cables with a plug. The plug joins the computer at a connector on the computer case.

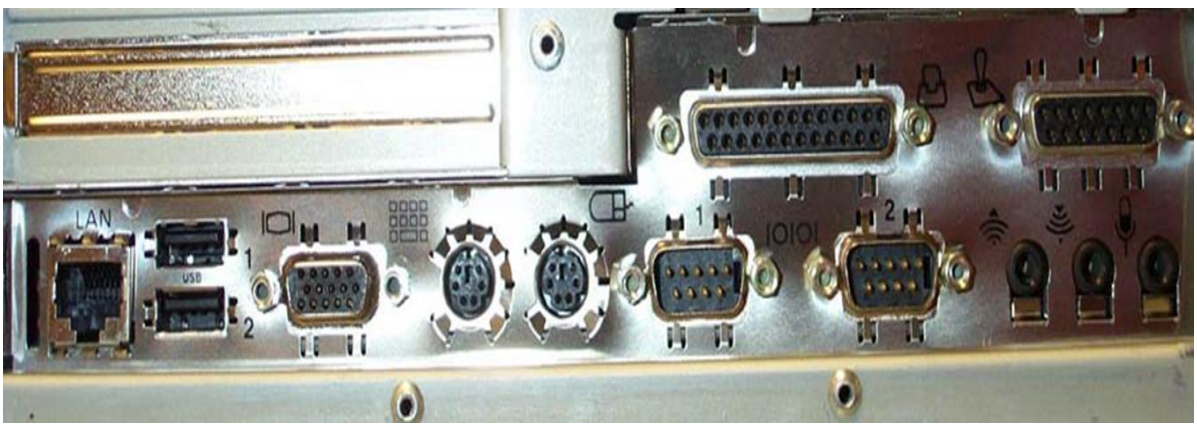
Types of Cables

- ✓ **Power cables:** These are cables that are used to transmit power from power source to the power supply of the computer.
- ✓ **Data cables:** These are cables that transmit data and graphic signals from the supply of the computer e.g. VGA, USB, HDMI, network cables and fire wire.
  - **USB (Universal Serial Bus)** or **PS/2:**
    There are two types: **USB A** that plugs into computers i.e. those used by keyboards and mouse and **USB B** that plugs into devices i.e. printers.
  - **HDMI (High Definition Multimedia Interface):**
    These provide an interface between any audio or video source.
  - **VGA (Video Graphic Array)**
    These are used to connect computers and laptops to the projector or add monitors.
  - **DVI (Digital Visual Interface)**
    These are used to connect video source (D in shape).
  - **Network Cables:** i.e. RJ45 used in network interface cards**.**
  - **Fire wire** also known as **IEEE 1394:** These move data at incredibly high speeds.

Compatibility of Peripherals and Port Polarization.

- ✓ This is a process of checking and verifying cable compatibility before connecting the cables.
- ✓ The connections on the back of the computer have been standardized.

Connection	Color
VGA	Blue
Parallel	Burgundy
Audio Line-In	Blue
Audio Line-Out	Lime
Microphone	Pink
PS/2 Mouse	Green
PS/2 Keyboard	Purple



Safety of connections

- ✓ To have a safe and secure connection of computer Peripherals some rules and guide lines must be followed.
    - Wall socket must be powered off.
    - Plugs of your power cables and adapter must be from the wall socket.
    - Tighten data cables more especially the graphics adapter cable or VGA which has some screw like features on edges of the connector, these screws are used to tighten the data cables to a compatible VGA connector.
    - Power cables must be connected at last, hence starting with the power supply then the plug at the wall socket.
    - Finally, you have to verify that every computer component is connected properly and now you can power on the computer.

02: STARTING A COMPUTER

- ✓ After verifying a safe and secure connection of a computer components and other peripheral devices we can now start out the computer.
- ✓ Check if your computer components are connected and verify that there are no loose cable connections.
- ✓ Check if your monitor is correctly connected to the system unit and its power cable is also plugged to the wall socket.
- ✓ Check if your mouse and keyboard are all securely connected to the system unit.

Power Rating and Sources.

- ✓ This is where you check the amount of power required by your power (input voltage) supply to power on the computer.
- ✓ The power rating for various computers start from 110V AC with the frequency of 60Hz and 220V-240V AC 50Hz
- ✓ we also look at fuse rating as another essential part before powering on the computer, the standard fuse rating is 3a, 5a and 13a.

Locating the Switch Button

- ✓ The Power switch is identified by a unique symbol, which is commonly found in front of the system unit. But some computers have their power switch at the back of the system unit that controls the whole power circulation process (main switch).

Booting

- ✓ This is a process of starting and restarting a computer.

Types of booting

- ✓ **Cold booting:** This is when you turn on a computer that has been powered off completely.
- ✓ **Warm boot:** This involves using the operating system to restart a computer.

The boot processes

- ✓ When a computer is powered on, power supply sends electric signals to all components of the computer, then bios tests all components and report to the computer, if there is a problem the computer will not start if there is no problem the computer will start.
- ✓ The **BIOS** (Basic Input /Output System) are the lowest level of software in the pc. It is located on a separate chip on the mother board and is the first thing that is loaded when we turn the computer on.
- ✓ The **BIOS** start by testing each component to make sure everything is operating as it should be and that the computer has everything it needs to load the **OS**.
- ✓ This starting test is called the **power on self-test (post).** If any error is detected during the **post**, bios will report them either through a series of beeps or by displaying the error on the screen.
- ✓ If there are no errors windows will start.
- ✓ When window start you can now able to see Graphical user Interface of windows such as desktop ,start menu, task bars and other icons on scren for you to interact with
- ✓ Usually when we talk about the bios, we are talking about the bios setup and its interface is used to adjust the settings.
- ✓ The bios setup is like the core values of the PC and they are used to dictate how the computer will operate at a fundamental level.
- ✓ To access the bios setup, you must press a particular key during the post usually this is the **'delete'** key or **'f1'** depending on your mother board and manufacturer of your computer.

Common Error Indicators

- ✓ **Beeps**
  - When the computer produces one beep it means the computer is ok.
  - When the computer produces two beeps it means time setting is not ok.
  - Continuous beep means keyboard failure.
  - Some beeps are also caused by processor failure.
- ✓ **Distorted display.**
  - This shows that you have got poor connection of graphics card or VGA damaged.
- ✓ **Control signals**
  - These are lights that tell the user that components are working.
- ✓ **Blue screen**
  - Some of the times it might be a blue screen of death this is mostly caused by a dying hard disk drive.

03: SHUTTING DOWN A COMPUTER

- ✓ To shut down a computer, you must look for the shutdown icon.
- ✓ At the shutdown icon there are other shutdown options, and they are
  - **Sleep:** equivalent to 'pausing the state of the computer'. when restored, the operations continue from the same point, having the same application and files open.
  - **Hibernate:** powering down a computer while retaining its state. The hardware is powered down.

- **Shut down:** turns off the computer completely.
- **Restart:** turns the computer off and turns it on again immediately.
- **Stand by:** energy consumed by a computer while it is turned off or in sleep.

✓ To shut down a computer: **click start**, **click the shutdown icon**, **click shutdown** then **click ok.**

✓ Shut down your monitor and unplug your power cables from the computer and from the wall socket.

MODULE 02: USING COMPUTER DEVICES(ICT-01-02)

✓ The four basic actions; input, processing, output and storage that make up the information processing cycle are achieved with different computer hardware components. For instance, there are input devices, output devices, storage devices and processing devices.

04.USING INPUT DEVICES

Input:

✓ This is any data and instructions entered into the memory of a computer.

Input device

✓ An input device is any hardware component that allows users to enter data and instructions into a computer.

✓ Examples include keyboard, mouse, touch screens, touch pads, scanners, digital cameras, barcode readers, graphic tablets, fingerprint readers etc.

❖ **Keyboard:**

- A keyboard is an input device that contains keys users press to enter data and instructions into a computer.
- Desktop computer keyboards typically have from **101** to **105** keys.
- Desktop computer keyboards often attach via a cable to a USB port on the system unit.
- Some keyboards, do not have any wires connecting the keyboard to the system unit.
- A wireless keyboard, or cordless keyboard, is a battery-powered device that transmits data to the system unit using wireless technology, such as radio waves (Bluetooth) or infrared light waves.
- Mobile Computers and Mobile Devices have keyboards which are usually smaller and have fewer keys than desktop computer keyboards.

Types of Keyboards

✓ QWERTY
✓ WERTY
✓ DVORAK

✓ **QWERTY:** these are the most common type of keyboards.

- The name comes from the first row on the keyboard.

- Each key is connected to switch which closes when the key is pressed. This send signals to the CPU based on the key's location.

✓ **WERTY:** the difference between QWERTY and WERTY is that the letter Q is not the first letter on the first row on these keyboards' layout.

✓ **DVORAK:** it can be an alternative for qwerty keyboards layout

- Got its name from its developer August Dvorak.

Parts of a Keyboard.

✓ **Alphanumeric keys:** the typing area which has both alphabetical and numerical characters.
✓ **Numeric keys:** on the right side of the keyboard which has numbers from 0-9 and some numeric calculation symbols.
✓ **Navigation keys:** additional keys such as those between the numeric and alphanumeric keys**.**
✓ **function keys:** f1-f12
✓ **Media control keys: i.e.** sound mute keys

Pointing Devices

- A pointing device is an input device that allows a user to control a pointer on screen in a graphic user interface, a **pointer** is a small symbol on the screen.
- A pointing device can be used to move the insert point, select text, graphics and other objects, and click button icons, links, and menu commands.

❖ **Mouse:**

- A mouse is a pointing device that fits comfortably under the palm of your hand.
- With a mouse a user controls the movement of the pointer, often called a **mouse pointer** in this case as you move a mouse, the pointer on the screen also moves.
- you use the mouse to move the pointer on the screen to an object such as a button, a menu, an icon, a link, or text.
- A mouse has a cable that attaches to a USB port or a mouse port on the system unit.

Parts of a Mouse.

✓ **Left mouse button:** used to select an element in the computer**.**
✓ **wheel or scroll button:** used to navigate up and down on the page.
✓ **Right mouse button:** used to get different options.

Types of Mouse.

✓ **Optical Mouse:** Arrow pointer on the screen is controlled by light rays emitting at the bottom of the mouse.
✓ **Mechanical mouse:** Arrow pointer is controlled by small round ball.

- ✓ **Wireless or Cordless Mouse:** A battery-powered mouse that transmits data using wireless technology, such as radio waves (Bluetooth) or infrared light waves.

❖ **Touchpad**

- A touchpad is a small, flat, rectangular pointing device that is sensitive to pressure and motion.
- To move the pointer using a touchpad, slide your fingertip across the surface of the pad.
- Some touchpads have one or more buttons around the edge of the pad that work like mouse buttons.

❖ **Touch screen**

- A touch screen is a touch-sensitive display device.
- Touch screen that recognize multiple points of contact at the same time are known as **multi touch.**
- User can interact with touch screen by touching area of the screen, some touch screens also responds to figure motions such as sliding your finger to zoom in or out.

❖ **Trackball**

- A trackball is a stationary pointing device with a ball on its top or side.
- To move the pointer using a trackball, you rotate the ball with your thumb, fingers, or the palm of your hand.
- In addition to the ball, a trackball usually has one or more buttons that work just like mouse buttons.

❖ **Pointing Stick**

- A pointing stick is a pressure-sensitive pointing device shaped like a pencil eraser that is positioned between keys on a keyboard.
- To move the pointer using a pointing stick, you push the pointing stick with a finger.

❖ **Scanners**

- Scanner or an optical scanner is a light-sensing input device that reads printed text and graphics and then translates the results into a form the computer can process.
- A beam of light passes across the page and senses the colour of various areas.
- There are **flatbed** scanners which have flat glass on which the documents are placed.
- Barcode scanners, handheld scanners, sheet feed scanners and drum head scanners are also some types of scanners.

❖ **Digital cameras.**

- a digital camera is a mobile device that allows users to take pictures and store the photographed images digitally, instead of on traditional film.
- The camera is directly connected to computers using cables or wirelessly through Bluetooth.

05.USING OUTPUT DEVICES

✓ Just as data entered can be of several different types, the information output from a computer can take different forms too. Information can be visual or audible.

Output

✓ Output is data that has been processed into a useful form.

Output Device

✓ An output device is any hardware component that conveys information to one or more people.

✓ Examples include monitors, printers, speakers, headphones, digital projectors,

❖ **Monitors**

- A monitor is a display device that visually conveys text, graphics, and video information.
- Desktop computers typically use a monitor as their display device.

Types of Display

✓ Flat panel display

✓ CRT monitor display

▪ **Flat panel display.**

LCD monitor: An LCD monitor is a desktop monitor that uses a **liquid crystal display** to produce images.

- These monitors produce sharp, flicker-free images.
- LCD monitors have a small footprint; that is, they do not take up much desk space.
- Mobile computer and mobile device have built LCD screen.

Plasma monitor: A plasma monitor is a display device that uses gas plasma technology, which sandwiches a layer of gas between two glass plates.

- Like LCD monitors, plasma monitors can hang directly on a wall.
- When voltage is applied, the gas released ultraviolet (UV) light which causes the pixel on the screen to glow and form an image.

▪ **CRT monitor.**

- A CRT monitor is a desktop monitor that contains a cathode-ray tube.
- A cathode-ray tube (CRT) is a large, sealed glass tube.
- The front of the tube is the screen coated by the tiny dots of phosphor material.
- Inside the CRT an electron beam moves back and forth across the back of the screen.

❖ **Printers.**

- A printer is an output device that produces text and graphics on a physical medium such as paper.
- They are used to produce a permanent hard copy of information on paper.
- You can print out documents by connecting a cable running from the computer to the printer or through wireless printing technology which makes the task of printing from notebook computers, smart phones, or digital cameras much easier.

Type of printers

- ✓ Impact printers
- ✓ Nonimpact printers

- **Nonimpact printers:** A nonimpact printer forms characters and graphics on a piece of paper without actually striking the paper. They are in two types: **Ink jet printers** and **Laser printers**
  - **Ink-Jet Printers**
    - © An ink-jet printer is a type of nonimpact printer that forms characters and graphics by spraying tiny drops of liquid ink onto a piece of paper.
    - © They produce text and graphics in both black and white and colour on a variety of paper type.
    - © The speed of an ink-jet printer is measured by the number of pages per minute (ppm) it can print.

How an ink jet printer works

Step1: A small resistor heats the ink causing the ink to boil and form a vapor bubbles.

Step2: The vapor bubble forces ink through the nozzle

Step3: Ink drops onto the paper.

Step4: As the vapor bubble collapses fresh ink is drowning into the fresh chamber.

  - **Laser Printers**
    - © A laser printer is a high-speed, high-quality nonimpact printer.
    - © Available in both black and white color. And they cost more than inkjet printers.
    - © Laser printers usually print at faster speeds than ink-jet printers.
    - © They are also called **page printers** as they print a page at a time.
    - © The image is formed on the page using a laser beam on a light sensitive drum that uses electrostatic charges to attract toner particles.
    - © The page then passes over a heated fuser unit to melt the toner on the page.

- **Impact Printers:** An impact printer forms characters and graphics on a piece of paper by striking a mechanism against an inked ribbon that physically contacts the paper.
  - There is a physical contact with the paper.
  - They are cheap and Very noisy due to the physical contact.
  - Two commonly used types of impact printers are **dot-matrix printers** and **line printers.**
  - A **dot-matrix printer** produces printed images when tiny wire pins on a print head mechanism strike an inked ribbon, When the ribbon presses against the paper, it creates dots that form characters and graphics.

- A **line printer** is a high-speed impact printer that prints an entire line at a time. The speed of a line printer is measured by the number of lines per minute (lpm) it can print.

❖ **Speakers, Headphones, and Earbuds**
- An audio output device is a component of a computer that produces music, speech, or other sounds, such as beeps.
- Three commonly used audio output devices are speakers, headphones, and earbuds.
- many users attach sound speakers or speaker systems to their computers to generate higher-quality sounds.

❖ **Data Projectors/digital projector**
- A data projector takes the text and images displaying on a computer screen and projects them on a larger screen so that audience can see the images clearly.

❖ **Interactive Whiteboards**
- This is a touch-sensitive device, resembling a dry-erase board, that displays the image on a connected computer screen.

❖ **Multifunction Printers:** also called an **all-in-one device**, is a single device that looks like a printer or copy machine but provides the functionality of a printer, scanner, copy machine, and perhaps a fax machine.

MODULE 03: USING SOFTWARE (ICT-01-03)

✓ A **software** includes all programs that tell a computer what to do and how to do it.
✓ Without software, the computer is just a collection of hardware bits and pieces and would be of no or little use to us.
✓ Software is divided into two main types: **system software** and **application software.**
✓ **System software** includes the operating system that help the computer to work properly and **utility programs**.
✓ **Application software** are programs designed to help us do tasks such as writing a paper or play games.

06. USING SYSTEMS SOFTWARE

- consists of the programs that control or maintain the operations of the computer and its devices.
- System software serves as the interface between the user, the application software, and the computer's hardware.

Types of system software.

✓ System software is further divided into two: **operating systems** and **utility programs.**

Operating Systems

✓ It is a set of programs containing instructions that work together to coordinate all activities of the computer hardware devices.
✓ The operating system contains instructions that allow users to run application software.

Functions of the operating system

i. **starting and shutting down a computer.**
- The Booting process of starting a computer is an operating system's responsibility.

ii. **providing a user interface:** You interact with software through its user interface.
- ✓ **User interface:** there is graphical user interface (GIU) and command line interface (CLI).
- ✓ **GIU:** you interact with menus and visual images such as buttons and other graphical objects to issue commands. i.e. desktop icons.
- ✓ **command line interface (CLI):** a user types commands or presses special keys on the keyboard to enter data and instructions

iii. **managing programs:** allows a user to multi task, work on multiple programs at once.

iv. **managing memory:** Controls how memory is accessed and maximize available memory & storage.

v. **coordinating tasks:** Determines the order in which tasks are processed.

vi. **configuring devices:** allows drives to communicate with specific devices.

vii. **establishing Internet connections:** operating systems includes a Set Up Connection or Network wizard that guides users through the process of setting up a connection between a computer and an internet service provider.

viii. **monitoring performance:** they have a performance monitor that assesses and reports information about various computer resources and devices.

ix. **providing file management:** provide users with the capability of managing files, securing a computer from unauthorized access, uninstalling programs, cleaning up disks, defragmenting disks, diagnosing problems, backing up files and disks etc.

x. **automatically updating itself and other utility programs:** they include an automatic update feature that automatically provides updates to the programs.

xi. **Managing networks:** A server operating system is an operating system that organizes and coordinates how multiple users access and share resources on a network.

Categories of Operating Systems

- ✓ stand-alone, client-server and embedded.
- ✓ **Stand-alone:** These are complete operating systems that work on desktop computers, notebook computers or mobile computing devices i.e. DOS, Windows, Mac OSX, UNIX and Linux.

- ✓ **Client-server:** a server operating system is an operating system that is designed specifically to support a network. The client computers on the network rely on the server(s) for resources. i.e. Windows Server, Windows NT, UNIX, Linux, Solaris and NetWare.
- ✓ **Embedded**: The operating system on most mobile devices and many consumer electronics, called an **embedded operating system i.e.** Windows Phone 7, Palm OS, iPhone OS, BlackBerry, Google Android, embedded Linux, and Symbian OS.

Utility Programs

- ✓ A utility program, also called a **utility**, is a type of system software that allows a user to perform maintenance-type tasks, usually related to managing a computer, its devices, or its programs.
- ✓ Most utilities are built-in in operating systems.

Functions of Utility Programs

- ✓ managing files such as searching files, backing up files.
- ✓ uninstalling programs.
- ✓ viewing images.
- ✓ Disks management i.e. disk clean-up, defragmenting disks and backing up disks.
- ✓ setting up screen savers.
- ✓ securing a computer from unauthorized access.
- ✓ virus-detection and recovery i.e. protecting against viruses, removing spyware and adware.
- ✓ network security and internet content filtering.
- ✓ compressing files.
- ✓ playing media files.
- ✓ burning optical discs.
- ✓ maintaining a personal computer.

Methods of Closing Systems Software

- ✓ **Shut down/ power off:** removing power from computers main components in a controlled way. Main components such as CPUs, RAM modules and hard disk drives are powered down but some internal components may return power i.e. internal clock.
- ✓ **Halt:** this is a computer machine code that causes the computer's central processing unit (CPU) cease meaningful operation, typically requiring a restart.
- ✓ **Kill:** this is computer command that sends signals to a process. Usually the signals are sent to tell a process to stop or exit.

07. USING APPLICATION SOFTWARE

- ✓ Application software consists of programs designed to make users more productive and/or assist them with personal tasks.

Uses of Application Software

- ✓ To make business activities more efficient.
- ✓ To assist with graphics and multimedia projects.

- ✓ To support home, personal, and educational tasks.
- ✓ To facilitate communications

Categories of Application Software.

- ✓ **Business:** Word Processing, Spreadsheet, Database, Presentation, Note Taking, Personal Information Manager (PIM), Business Software for Phones, Business Software Suite.
- ✓ **Graphics and Multimedia:** Computer Aided Design (CAD), Desktop Publishing, Paint/Image Editing, Photo Editing, Video and Audio Editing.
- ✓ **Home/Personal/Educational:** Clip Art/Image Gallery, Video and Audio Editing (for Personal Use), Home Design/Landscaping, Travel and Mapping, Reference and Educational, Entertainment.
- ✓ **Communications:** Web Browser, E-Mail, Instant Messaging, Chat Room, Text, Picture, Video Messaging, Blogging, Newsgroup/Message Board, FTP, VoIP, Video Conferencing.

❖ Application software is available in a variety of forms: packaged, custom, Web application, open source.

- ➢ **Packaged software:** Is mass-produced, copyrighted retail software that meets the need of a wide variety of users, not just a single user or company.
    - Microsoft office is a packaged software which has Microsoft excel, Microsoft word, Microsoft power point, Microsoft publisher and access.
    - Some video and audio editing software may be available as package software as well.
- ➢ **Custom software**: performs functions specific to a business or industry i.e. easy desk.
- ➢ **Web application software:** A Web application is a Website that allows users to access and interact with software from any computer or device that is connected to the Internet**.**
  Types of Web applications include e-mail, word processing, tax preparation, and game programs.
- ➢ **Open Source Software:** these are software provided for use, modification, and redistribution**.**
  Open source software usually can be downloaded from the Internet, often at no cost.

08. INSTALLING PROGRAM/SOFTWARE

Installation Media.

- ✓ Is a device that stores software or programs temporarily or permanently.
- ✓ Examples of Installation Media
    - USB flash drives, hard disks, optical discs, and memory cards.
- ✓ An **Installation Media** records (writes) and/or retrieves (reads) items to and from media.

- ✓ An optical disc is a flat, round, portable metal disc with a plastic coating. **CD**s, **DVD**s, and **Blu-ray Discs** are three types of optical discs
- ✓ When purchasing software from a retailer, you typically receive a box that includes an optical disc(s) that contains the program.
- ✓ If you acquire software from a Website on the Internet, you may be able to download the program; that is, the program transfers from the Web site to the hard disk in your computer.

Minimum Hardware Specifications.

- ✓ When you buy a computer, the box, the manufacturer's Web site, or the order summary will list the computer's specifications. Similarly, when you buy software, the software box or the product's Web site lists specifications.
- ✓ Your computer's specifications should be the same as or greater than the software specifications.

Installation Process.

- ✓ The instructions in software are placed on storage media, either locally or online.
- ✓ **Installing** is the process of setting up software to work with the computer, printer, and other hardware.
- ✓ To begin installing software from an optical disc, insert the program disc in an optical disc drive and follow the instructions to begin installation.
- ✓ To install downloaded software, the Website typically provides instructions for how to install the program on your hard disk.

Or Open my computer.

- ✓ Within the My Computer window, open the drive that contains the installation files. For example, if the files are on the CD-ROM drive, open the D: drive or letter of your CD-ROM drive.
- ✓ Within the drive that contains your files, locate either the executable **setup** (i.e. **"setup.exe")** or **install** file. Double-clicking on this file starts the installation process.

Installing from a download

- ✓ Download the program from the website providing the program.
- ✓ Open the download folder.
- ✓ If the file you downloaded is an executable file, double-click the file icon to start the setup process. If the downloaded file is compressed (e.g., .zip), you must extract the file's contents before setup can begin. Fortunately, this function is built into most versions of Windows.
- ✓ Once the files are extracted, double-click the setup to install.

Installing from a USB flash drive

- ✓ Open Windows Explorer or My Computer and find the USB drive that is typically the last drive letter.
- ✓ Once the drive is opened find the setup or executable file, double-click the file icon to start the setup process.

Installing the Operating System

- ✓ To install the operating system on the computer, if the operating system software came on a CD or DVD disc, you need to configure your computer to boot to the CD/DVD disc drive. You can change the boot sequence by accessing the computer **BIOS** and setting the CD/DVD drive to be the first boot device.
- ✓ Some computers may also allow you to access the boot sequence directly at computer start up, without entering the **BIOS**, by pressing a specific key on the keyboard. The key to press differs for each computer, but is often either the **Delete key** or one of the **function keys** at the top.
- ✓ If the operating system software came on a USB flash drive, you need to configure the computer to boot to a USB device as the first boot device.

MODULE 04: MANAGING A COMPUTER (ICT-01-04)

09. CUSTOMIZING A COMPUTER

- ✓ **A user account** is a collection of information that tells which files and folder you can access, what changes you can make to the computer and your personal preferences e.g. desktop back ground and screen saver.

User Accounts.

- ✓ **Administrator account.**
  - Is a user account that lets you make changes that will affect other users and it provides full access to the computer.
  - An administrator can change security settings, install software and hardware and access all files on the computer.
  - An administrator can also make changes to other user accounts.
  - Administrator account allows you to set up your computer and install any programs that you would like to use.
  - It is recommended to create a standard account for each other user.
- ✓ **Standard Account.**
  - A standard user account lets a person use most of the capabilities of the computer but permission from an administrator is required if you want to make any change that affect others or the security of the computer.
  - When you use a standard account, you can use most programs that are installed on the computer but you cannot install or uninstall software and hardware.
  - When using a standard account, you cannot access files that are required for the computer to work or change settings on the computer that affect other users.

- If you are using a standard account, some programs might require you to provide an administrator password before you can perform certain tasks.

✓ **Guest Account.**

- Is an account for users who do not have a permanent account on your computer.
- It allows people to use your personal files.
- People using the guest account cannot install software and hardware, change settings or create a password.

Authentication.

✓ This is the act of proving the identity of a computer system user.
✓ **Or** the process of certifying that you are the light person to use the account.

Authentication Methods

✓ **Username and password:**

- a **username** is a unique combination of characters, such as letters of the alphabet or numbers, that identifies one specific user.
- A **password** is a private combination of characters associated with the user name that allows access to certain computer resources.

✓ **Finger prints:** use of finger prints as a biometric identifier which identifies a specific user.
✓ **Face recognition:** another biometric identifier that identifies a specific user by their facial characteristics.
✓ **Voice recognition:** biometric identifier that identifiers a user's voice.
✓ **Swipe cards.**

Computer Settings

✓ Date settings
✓ Desktop background settings for changing the desktop with whatever background you might wish.
✓ Theme settings.
✓ Window colour & Appearance settings.
✓ Screen saver settings.
✓ Sound settings to adjust the sound of your computer system.
✓ Mouse pointers settings.
✓ Display settings.

Common features that increase usability

✓ **Undo/redo:** reverse or repeats an action.
✓ **Cut, copy and paste:** moves and copies things to other locations e.g. text from one place to another.
✓ **Wizards:** walks the user through complicated actions/activities.
✓ **Help files:** instructs users on how to use the software.
✓ **Drag and Drop:** makes it dead easy to move things.
✓ **Find and replace:** searches for things and changes them.

- ✓ **Zoom:** enlarges a specific area of a document.
- ✓ **Printing:** creates a hard copy of a document.

10. ORGANISING COMPUTER FILES

File

- ✓ A file is a block of data that is stored under one name, called its **filename.**
- ✓ A directory tells the OS where on a disk the files are, how big each file is, when it was created.
- ✓ Every file has a specific file path, which describes its location.
- ✓ Most file paths start off with the root directory (the folder which contain everything else), then a number of subfolders, then the file name and its extension.

Types of Files

- ✓ **Program files:** files containing software instructions.
    - **Source program files** contain original form of instructions from the creator of the file.
    - Source program files are then translated to another type of program file called **executable files** so that the processor can interpret them and carry out the function of the file.
- ✓ **Data files:** this mainly holds data, they contain information that is to be acted on by the program files. They hold data like graphics, documents, audio files etc.

Folder

- ✓ This Is a virtual container in a computer files system in which files system and other folders may be stored.

  OR
- ✓ A collection of related files.
- ✓ Subfolders are folders within folders useful when dealing with loads of files.

Types of Folders

- ✓ Zipped folder
- ✓ My document folder
- ✓ My computer folder

Files and Folders management.

- **Creating:** coming up with a new folder or file.
- **Renaming:** changing the filename of a file.
- **Copying:** making a duplicate of the file or the folder.
- **Moving:** transferring the file to a new location (so it has a new filepath)
- **Deleting:** removing a stored file.

MODULE 05: USING INTERNET AND EMAIL(ICT-01-05)

11. USING INTERNET

Internet.

- ✓ Internet is a large group of interconnected computers around the world that allow the sending and retrieval of information from one computer to another.
- ✓ The internet is made up of three important parts: servers, clients and protocols.
- ✓ Internet servers are the computers that provide services to other computers on the internet.
- ✓ Internet clients are computers that request services from a server.
- ✓ Protocols are special sets of rules that allow clients and servers to connect to one another. protocols tell computers how to format data and transmit it over a network.

The World Wide Web

- ✓ A collection of multimedia resources accessible via the internet.
- ✓ Or a system of interlinked documents (webpages) accessed through the internet.
- ✓ It is the main area for the retrieval of information stored on websites.
- ✓ **Website**: this is a collection of web pages and related content that is identified by a common domain name and published on a web server.
- ✓ **Web browser** software's are used to access files through the use of HyperText Transfer Protocol (HTTP) which most web browsers and hardware platforms support.
- ✓ Webpages are written in HyperText Mark-up Language (HTML) and linked together using hyperlinks.

Accessing/Connecting to the Internet

- ✓ **Wireless broadband** or **WI-FI;** Wireless connections are made possible through the use of a modem, which picks up internet signals and sends them to other devices.
- ✓ **Wired or cable:** Cable television companies offers internet access through cable modems which are of very high speeds.
- ✓ **Dial-up Connection:** The modern of computer uses a standard telephone line to connect to the internet. They are very slow internet connections.
- ✓ **Mobile Internet or cellular:** Access to the internet is provided wirelessly by a mobile communication network.
- ✓ **Satellite:** Satellite modern communicates with a satellites dish to provide high-speed internet connections via satellite.

Browsers/web browser

- ✓ A **web browser** or just a **browser** is a software application for accessing information on the world wide web.
- ✓ To connect to a website's server and display its web pages, a user must have a web browser installed on their device.
- ✓ Examples of web browsers:

- Google chrome:
- Internet Explorer.
- Mozilla or Mozilla Firefox.
- Safari
- Microsoft Edge

✓ Browser tools include: Enter, Back, Forward, Refresh, Stop, History, Bookmark, New tab etc

Search Engines.

✓ A **search engine** is a software that is designed to carry out web searches (internet searches).
✓ The search results are presented in a line of results, often referred to as search engine results pages.
✓ The information is a mix of links to web pages, images, videos, infographics, articles, research papers, and other files.
✓ Common search engines are:
- Google or Google search.
- Yahoo or Yahoo search.
- Bing or Microsoft Bing.
- Alta Vista
- Yandex.
- Ask.

Data Transfer

✓ Moving data files on the internet.
✓ This is done by two technologies:
- **Downloading:** Receiving or taking a copy of digital from a network computer to local computer; e.g. getting a file from the internet to your computer's hard drive.
- **Uploading:** Sending of data from the local computer to network computer; e.g. sending a video to a specialized server on the internet.

✓ A Web page has a unique address, which is called a **URL** (Uniform Resource Locator) or a web address.
✓ Web browsers retrieves web pages from websites using web addresses or Uniform Resource Locators (URL) of that particular page.
✓ These web addresses have protocols that allow the sending and receiving of webpages on the internet.
✓ Some of the protocols are:
- HyperText Transfer Protocol (HTTP)
- File transfer protocol (FTP)

Internet Services.

✓ Services accessible from the internet:
✓ Email
✓ Web

- ✓ File transfer
- ✓ Chat
- ✓ Message board
- ✓ Instant messaging

Internet Application

- ✓ **e-services:** these are services you can get online, without leaving your home.
- ✓ Business i.e. Online Banking and E-commerce.
- ✓ Education through E-learning and so much.
- ✓ Health i.e. E-Health.
- ✓ Electronic mail(email)
- ✓ Social i.e. social networks.
- ✓ Instant Messaging.
- ✓ Government: E-government

Social Networks

- ✓ These are online platforms which people use to build social networks or social relationships with other people who share similar personal or career interests, activities, back grounds or real-life connections.
- ✓ Social networking sites allow users to share ideas, digital photos and videos, posts etc.
- ✓ all social networking platforms require one to have a user account for that particular individual to connect with his fellows on the platform
- ✓ Examples are:
    - Facebook,
    - Twitter,
    - Instagram,
    - good reads,
    - LinkedIn.

VoIP (Voice over Internet Protocol)

- ✓ This is a technology that allows transfer of sound (and multimedia session) over the internet.
- ✓ VoIP protocol enables audio or video communications between users on the internet.

Internet safety

- ✓ **Phishing:** a technique that is used to get your log-on information to a bank account or similar. This is done by sending an email which looks realistic.
- ✓ **Spam** (unwanted emails)
- ✓ **Malicious programs:** might include viruses, worms, trojans, spyware, adware, rouge diallers.
- ✓ **Hackers;** gaining unauthorised access to computer systems where private information can be obtained.
- ✓ **Hoaxes:** people who spreads false information over the internet.

12. USING EMAIL

- ✓ **E-mail** (short for **electronic mail**) is the transmission of messages and files via a computer network. Today, e-mail is a primary communications method for both personal and business use.
- ✓ **Email address:** Combination of domain name and username which gives a user a unique identity enabling them to send and receive messages and files.
- ✓ **Username:** Combination of characters that uniquely identifies specific user.
- ✓ **Domain name:** Text version of IP address which identifies any computer on the internet.

Email programs.

- ✓ These are ways of accessing an email account: **webmail** and **email client programs**

Webmail

- ✓ These are hosted on a particular server and users access the email system on the server.
- ✓ You use an internet browser to access and manage your emails, which are stored remotely on the computer server of the email provider.
- ✓ Microsoft Hotmail, Google Gmail and Yahoo are examples of webmail.

Email client programs

- ✓ **Email client programs** also called **desktop email programs** runs on your computer and downloads all your emails to a local system (i.e. your own computer). The best-known example is **Microsoft outlook.**
- ✓ To access email services, you have to create an account with one of your chosen email service providers.
- ✓ Common email service providers include Google which provides Gmail, Microsoft provides outlook and Hotmail, yahoo provides yahoo mail.

Email account settings

- ✓ **Inbox:** this is where received messages are stored
- ✓ **Outbox:** where the messages you are sending are stored.
- ✓ **Sent items:** this folder stores messages you have sent or have been sending.
- ✓ **Deleted items**: where any message you have deleted are stored.
- ✓ **Drafts:** where messages you are still working on are stored
- ✓ **Spam folder:** stores unwanted emails

Creating an email

- ✓ On the home tab of email program either webmail or email client program click new email or compose.

- ✓ On the new message window that opens, enter the email address of the person you are sending the message in the **TO...**box.
- ✓ Enter the subject in the subject box.
- ✓ Then type message in the box below the subject.

To attach a file

- ✓ After writing your message click on the **Attach** button on the toolbar.
- ✓ The **insert attachment** window appears.
- ✓ Select the drive and location where the file you want to send has been saved.
- ✓ Click on the file, so that it appears in the **filename** box.
- ✓ Click **Attach**
- ✓ Your file will be shown in the **Attach**: box of your message
- ✓ **send** the email after writing your message or attaching your file.
- ✓ Other ways to send an email.
    - ✓ The **Cc..**box is used to add the email address of someone who will receive a copy of the email. It is not directly addressed to them. The person who receives the email will see the email address and names of people who appear in the **Cc...** box.
    - ✓ The **Bcc...**box is used to add the email address of someone who will receive a copy of the email. The person receiving the email will not see the email addresses or names of people who appear in the **Bcc...**box
    - ✓ You can enter multiple email addresses in both the **To...** and **Bcc...**and **Cc...** boxes. Use a semi colon to separate.

Email safety

- ✓ Email is not totally secure, avoid sending sensitive information credit card numbers, passwords and any social security number.

Common Email Safety Issues

- **Spam**: spam is another term for **junk email** or unwanted email advertisements.
- **Phishing:** certain emails pretend to be from a bank or a trusted source in order to steal your personal information.
- **Attachments**: some email attachments contain viruses and other malwares.

Email Protocols

- ✓ **POP** (Post Office Protocol)
- ✓ **IMAP** (Internet Message Access Protocol)
- ✓ **SMTP** (Simple Message Transfer Protocol)

- ✓ **HTTP** (HyperText Transfer Protocol.)

MODULE 06: SERVICING COMPUTER EQUIPMENT (ICT-01-06)

13. ASSESSING COMPUTER EQUIPMENT

- ✓ **Assessing** means evaluating or estimating the nature or ability for quality of something.

Reasons for Assessing or Maintaining Computer Equipment

Assessing or maintaining is done to:

- ✓ Improve the performance of the system.
- ✓ protect our hardware equipment.
- ✓ protect information.
- ✓ Due to time your computer will begin to slow down and perform at optimal level.

Equipment to be Assessed

- ✓ Monitor
- ✓ System unit
- ✓ Keyboard
- ✓ Mouse
- ✓ Scanner
- ✓ Printer

Computer Hardware servicing tools

- ✓ Cable tester.
- ✓ Screw drive.
- ✓ Digital meter.
- ✓ Soft brush.
- ✓ Hand blower.

Digital Meter

- ✓ Is a device used to measure voltage, resistance and current in electrical and electronic equipment.
- ✓ It is also used to test continuity between two points to verify if there are any breaks in circuit or line.

Screw Driver

- ✓ A hand tool for turning a screw, it has a handle attached to a long narrow shank usually a metal.
- ✓ Screw drivers take different shapes, for instance; flat and star.

Brushes (Soft Brushes)

- ✓ Hand held tool for cleaning computer equipment.
- ✓ Designed to remove dust particles from the equipment of computer
- ✓ Mostly used in cleaning the keyboard.

Cable Tester

- ✓ Is a device that is used to test the strength and connectivity of a particular type of cable and other wired assemblies
- ✓ There are a number of different types of cable testers, each cable to test different types of cable or wire.
- ✓ Cable tester can test whether a cable or wire is set up properly, connected correctly and the communication strength between the source and destination.

Software Servicing Tools

- ✓ Anti-viruses.
    - Every unprotected computer is susceptible to malicious software.

Computer Virus

- ✓ A computer virus is a potentially damaging computer program that affects, or infects a computer negatively by altering the way the computer works without the user's knowledge or permission.
- ✓ Once the virus infects the computer it can spread throughout and may damage files and system software including the operating system.

Signs of virus infections

- ✓ unusual messages or images displayed on the computer screen.
- ✓ An unusual sound or music plays randomly.
- ✓ The available memory is less than what should be available.
- ✓ A program or file suddenly is missing.
- ✓ An unknown program or file mysteriously appears.
- ✓ The size of a file changes without explanation.
- ✓ A file becomes corrupted.
- ✓ A program or file does not work properly.
- ✓ System properties change.
- ✓ The computer operates much slower than usual.

Malicious software

- ✓ All Computer viruses, worms, Trojan horses and rootkits are **malicious software** (Malware).
- ✓ **Malware (**short for **malicious software**) are programs that act without a user's knowledge and deliberately alter the computer's operations.
    - **Worm;** copies itself repeatedly, for example, in memory or over a network, using up system resources and possibly shutting down the system i.e. Sasser or Klez.
    - **Trojan horse:** hides within or looks like a legitimate program such as a screen saver. it does not replicate itself to other computers.

- **Spyware:** a program placed on a computer without the user's knowledge that secretly collects information about the user.
- **Adware**: a program that displays an online advertisement in a banner or pop-up window on Web pages, e-mail, or other Internet services.
- **Rootkit:** a program that can easily hide and allow someone to take full control of your computer from a remote location.

Ant-Viruses

- ✓ An antivirus is a program that protects a computer against viruses.
- ✓ Ant-virus software is a computer software used to prevent and detect malicious software.
- ✓ It protects a computer against viruses by identifying and removing any computer viruses found in memory, on storage media or on incoming files.
- ✓ Most antivirus programs also protect against worms and Trojan horses.

Popular Ant-Virus Software

- ✓ Norton antVirus
- ✓ Avast antVirus
- ✓ AVG ant-virus
- ✓ MacAfee virus scan.
- ✓ Kaspersky.
- ✓ Windows defender.

Tips for Preventing Virus and other Malware

- ✓ Scan all downloaded programs for viruses and other malware.
- ✓ Before using removable media scan the media for malware, follow the procedure even for shrink wrapped software from major developers.
- ✓ Install the latest Microsoft updates.
- ✓ Purchase reputable antivirus programs.
- ✓ After installing an antivirus program, scan your entire computer to be sure it is free of malware.
- ✓ Update your antivirus definitions regularly.
- ✓ Be suspicious of any and all unsolicited e-mail attachments.
- ✓ Stay informed about viruses and virus hoaxes.
- ✓ Install a personal firewall program.
- ✓ Download software only if you are sure the Web site is legit.
- ✓ Avoid visiting unscrupulous Websites.

14. CLEANING COMPUTER EQUIPMENT.

- ✓ **Cleaning:** A way of removing stains and any other dusty particles including dents on any device to look clean.
- ✓ Cleaning the computer components and peripherals help to keep everything in good working condition and prolongs the life of our equipment.
- ✓ How often should you clean your computer?
    - It depends on a number of factors, but it is advised to clean it **every time before and after use**

The following determine how one should often clean a computer

- **computer location**
  - ✓ Is it located in a home environment?
  - ✓ Is it located in a clean office environment?
  - ✓ Is it located in a construction or industrial environment?
  - ✓ Is it located in a school environment?
- **Computer operating environment**
  - ✓ Do you smoke in the same building as computers?
  - ✓ Is the room that the computer is in have a carpet?
  - ✓ Do you eat or drink by your computer?
- **Computer user**
  - ✓ Adults
  - ✓ Young Adults
  - ✓ Pre-teen
  - ✓ More than one person

General Cleaning Tips.

- ✓ Never spray any liquid onto any computer component. If spraying is required spray the liquid on the cloth.
- ✓ You can use a vacuum to suck up dirt, dust or hair around the computer. Do not use a vacuum inside your computer it generates static electricity that can damage the computer.
- ✓ When cleaning a component or the computer turn it off before cleaning.
- ✓ Limit smoking around the computer.
- ✓ Never eat or drink around the computer.

Cleaning materials or **cleaning agents**

- ✓ **Mutton Cloth-** A 100% cotton cloth is the best tool used when rubbing down computer components.
  - Paper towels can be used with most hardware, but a cloth is recommended whenever possible.
  - However, only use a cloth when cleaning components such as the case, a drive, mouse, and keyboard.
- ✓ **Benzene/rubbing alcohol**
  - When moistening a cloth, it is best to use a rubbing alcohol i.e. benzene
  - Other solvents may be bad for the plastics used with your computer.
- ✓ **Spirit.**

Cleaning Tools

- ✓ **Portable Vacuum**
  - Sucking the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer.

- However, do not use a vacuum that plugs into the wall since it creates lots of static electricity that can damage your computer.

✓ **Soft Brushes**
- Hand-held tool for cleaning computer equipment.
- Designed to remove dust particles from equipment of computers.
  Mostly used in cleaning of the keyboard.

✓ **Hand Blower**
- An electric powered blower that is used to clean dust inside the system unit by releasing air at a high speed and pressure.

Methods of cleaning

❖ **Blowing:** using a hand blower which releases air at a high speed to blow off dust stuck inside conjected areas i.e. cleaning inside the system unit.
❖ **Wiping:** moving a piece of a cloth over a surface of the computer equipment i.e. the monitor screen.
❖ **Brushing:** moving the soft brush's protruding on a bumpy surface to remove dust stuck inside i.e. cleaning in between the keyboard keys.

MODULE 07: MANAGING RECORDS(ICT-01-07)

Information.

✓ This is data that has been processed to provide meaning and be used (processed items).

Techniques for Gathering Information

✓ **Interviews**
- A one on one conversation where one is supposed to be asking questions and the other giving responses.
- Interviews are in-depth sources of information; detailed questions can be asked and complex and unknown issues can be explored.
- **But** sensitive issues maybe challenging to ask.

✓ **Reading**
- Reading newspapers, internet articles, books, biographies etc is a great source of information.
- The disadvantages are that one can read the mistakes that were done during the writing of the story.

✓ **Questionnaire**
- Questionnaires are a list of questions either open-ended or close-ended for which the respondents give answers.
- Questionnaire can be conducted via telephone, live in a public area, through electronic mail, online forms, physical forms and other methods.
- Large amounts of information can be collected from a large number of people in a short period of time.

- **But** it is difficult to discover some forms of information - i.e. changes of emotions, behavior, feelings etc.

✓ **Observation**
- Involves witnessing everything taking place at an occasion.
- Observations are relatively free of observer bias.
- **But** much of the interaction is missed.

Retrieving

✓ **Retrieving** means regaining back the lost information or data.

Retrieving Information

✓ **Back-up and Restoring**
- **Back-up:** It is a copy of an original file that maybe recovered if the original is destroyed, damaged or lost.
- **Restoring:** Recovering data or information from a backup.

Retaining Information

✓ keeping or holding a piece of information(documenting).

Methods of Retaining Information

✓ **Soft copy**
- A file or an electronic copy of some type of data that can be viewed on a computer screen without printing it.
- Soft copy viewing has the advantage of being able to optimize the display.

✓ **Hard copy**
- This is a permanent reproduction, or a copy in form of a physical object i.e. paper
- Or a printed file/document.

Records

✓ A record is any recorded data or information in any physical format or media created or received by an organisation during its course of official business.

Records Management

✓ Records management refers to the whole range of activities which an organisation should perform to properly manage its records.

Categories of Information/records that can be Retained

✓ **new acquisitions:** arrival of new items.
✓ **hardware:** hard ware components i.e. a number of keyboards, mouse etc**.**
✓ **software:** type of operating systems being running in computers and other application software.
✓ **Training records:** details of the dates of trainings**.**

Filing

- ✓ The process of keeping documents/files in a safe place and being able to find them easily.

Filing records

- ✓ This is a process of classifying records and putting them into the correct location in the file.

Types of Filing System

- ✓ **Alphabetical**
  - Filling information according to their alphabetical order through naming(letters)
- ✓ **numeric**
  - Using numbers to record information
- ✓ **Alphanumeric**
  - Information is categorised by using both numbers and letters

BonVoyage!!...

QUESTION AND ANSWERS FOR 2019 NATIONAL EXAMS

(OCCUPATION PAPER-**Technology**)

2019 MALAWI TEVET FOUNDATION CERTIFICATE EXAMINATIONS

Note: All Answers are in **bold.**

1. Which statement is NOT a definition of computer?
    a. Mechanical device that prints papers.
    b. An electrical device that manipulates data.
    c. Data processing device that controls a user and automates the output.
    d. An automated machine used to get input, process it and produces output.
2. The word POST stands for
    a. Power On Self-Test.
    b. Power Off System Test
    c. Power On Services Test
    d. Power Over System Test
3. The following keyboard combination does not lock the computer except
    a. Windows + H
    b. Windows + P
    c. Windows + L
    d. Windows + S
4. Which shutdown command stops computer processes and turns off the entire system?
    a. Click start, click shutdown, click okay
    b. Click start, click okay, click shutdown
    c. Click start, click shutdown, click restart
    d. Turn off monitor, turn off power, click shutdown
5. Which of these components are part of the internal computer components?
    a. RAM and keyboard
    b. RAM and Motherboard
    c. Motherboard and mouse
    d. Portable USB drive and hard disk drive
6. Which of the following best describes Random Access Memory (RAM)?
    a. Used s output device
    b. Loses data in event of power loss
    c. An example on non-volatile memory
    d. Retains data in the event of power loss
7. When you turn on a computer, you get series of beep codes and no display is made to the monitor, select what you should check first?
    a. RAM
    b. Speaker
    c. Power supply
    d. Micro processor
8. Which expression best describes the word BIOS?
    a. Basic Input Output System
    b. Basic Input Output Operating System

c. Basic Input Output Operating Services
d. Basic Information Operating System

9. Which of the following are parts of the key board?
    a. Functional keys, picture keys, numeric keys
    b. Alphabetical keys, picture keys, sound keys
    c. Numeric keys, alphabetical keys, sound keys
    d. Numeric keys, functional keys, alphabetical keys
10. The following are **NOT** examples of input devices
    a. Track ball and mouse
    b. Speakers and monitors
    c. Microphone and scanner
    d. Keyboard and touch screen
11. When working with word or excel document, what is the function pressing CTRL + N?
    a. Opens help window
    b. Deletes the document
    c. Opens a new document
    d. Duplicates the document
12. A small program stored on the computer to tell it how to communicate with a specific input or output device is
    a. Device divider
    b. Service software
    c. System software
    d. Application software
13. Spread sheet file is the name given to a
    a. Database file
    b. Document file
    c. Workbook file
    d. Presentable file
14. Which operating system uses NTFS for installation?
    a. Unix operating system
    b. Mac operating system
    c. Linux operating system
    d. Windows operating system
15. Processor speed is an example of_____for installation of windows operating system
    a. Minimum user requirement
    b. Minimum service requirement
    c. Minimum software requirement
    d. Minimum hardware requirement
16. Which of the following is the process of installing more than one operating system in one computer?
    a. Core installation
    b. Virtua installation
    c. Multi boot installation
    d. Single boot installation
17. Which of the following is a destination for installation of a program?

a. CPU
b. RAM
c. CD/DVD
d. Hard disc drive

18. Which of the following operating systems belong to Microsoft windows operating system family?
    a. Unix
    b. Ubuntu
    c. Mac OS
    d. Windows 10
19. Which of the following is a type of computer network?
    a. Global network
    b. Wireless network
    c. Physical network
    d. Local area network
20. How can a copy of a passport be sent by email?
    a. Print and send to email
    b. Duplicate and send email
    c. Scan, attach to email and send
    d. Photocopy and attach to email and send
21. The following is method used to secure web or email communications
    a. Virus
    b. Firewall
    c. Malware
    d. Phishing
22. Identify a folder name used to store received emails
    a. Inbox
    b. Outbox
    c. Sent box
    d. Spam box
23. Which of the following applications will open electronic spread sheet?
    a. Microsoft Office Excel
    b. Microsoft Office Word
    c. Microsoft Office Access
    d. Microsoft Office Power Point
24. Which of the following keyboard commands are used to cut and paste any selected text or item?
    a. Ctrl + V, Ctrl + C
    b. Ctrl + X, Ctrl + V
    c. Ctrl + C, Ctrl + V
    d. Ctrl + X, Ctrl + C
25. A strong and safer password should have the following features except
    a. Minimum of 6 letters
    b. Both capital and small letters
    c. Have both letters and numbers
    d. Both uppercase and lower-case letters

26. Advanced user account configuration is found in the following location
    a. Start menu
    b. Control panel
    c. Desk top screen of a computer
    d. Computer management console
27. The exact location of deleted files on a windows computer is
    a. Desktop
    b. Dump site
    c. USB stick
    d. Recycle bin
28. Expand the acronym GUI
    a. Global User Interface
    b. Global User Interaction
    c. Graphical Use Interface
    d. Graphical User Interface
29. Which of the following symptoms show that a computer is free from malware?
    a. File getting hidden
    b. Computer freezes and thereafter reboots
    c. Boot process completes faster and successfully
    d. Program taking longer than normal to execute
30. Select a correct statement that defines a computer virus
    a. Tools used to measure network traffic
    b. A small device that scans the number from credit cards
    c. An ID checking toll monitor who logged onto a network
    d. Malicious software designed to cause annoyance or damage
31. The only solvent that is used to clean electronic component of a computer is
    a. Benzene
    b. Salty water
    c. Soapy water
    d. Clean water
32. What must you do if after cleaning a spillage on a keyboard, the keyboard still has sticky keys?
    a. Remove all keys
    b. Replace the keyboard
    c. Stop using the keyboard
    d. Remove the keyboard to another computer
33. The advantage of classifying records is to ease
    a. Deletion
    b. Retrieval
    c. Omission
    d. Misplacement
34. Which of the following are classifications of records?
    a. Data and sorted
    b. Electronic and data
    c. Electronic and traditional
    d. International and traditional

44.(a) What do understand by the term system software?

_____
_____
_____.

(b) State one example from the answer given above

_____
_____.

46.Differentiate hardware form software and give an example of each.

_____
_____
_____
_____
_____.

47.Briefly explain the use of computers in business

_____
_____
_____.

48. Describe two installation types on windows operating system.

_____
_____.

49. Define a disk partition

_____
_____.

QUESTION AND ANSWERS FOR 2020 NATIONAL EXAMS

2020 MALAWI TEVET FOUNDATION CERTIFICATE EXAMINATIONS
(OCCUPATION PAPER-**Technology**)

1. Which expression best describes a ROM?
    a. Rate Of Memory
    b. Read Only Memory
    c. Ready Only Memory
    d. Random Only Memory
2. The following are computer peripherals **EXCEPT**
    a. Printer
    b. Speaker
    c. Scanner
    d. random Access Memory
3. which of the following is a computer port?
    a. USB
    b. RAM
    c. ROM
    d. CMOS
4. When you turn a computer on, you get series of audible beeps. If no display is made to the computer screen, select what you would check first
    a. RAM
    b. CPU
    c. Speaker
    d. Computer screen
5. The following are features of POST **EXCEPT**
    a. BIOS
    b. RAM
    c. Monitor
    d. Video card BIOS
6. Which of the following keyboard combinations locks a computer system?
    a. Windows button + P
    b. Windows button + H
    c. Windows button + L
    d. Windows button + S
7. The following are examples of non-volatile memory except
    a. HDD
    b. RAM
    c. ROM
    d. Memory stick
8. What happens if you press Ctrl + F4 buttons?
    a. Open window closes
    b. New document is opened
    c. Open document is deleted
    d. Duplicates opened document
9. Which of the following are types of computer cables?

a. USB cable and power cables
b. Power cable and data cable
c. Power cable and SATA cable
d. Serial port cable and data cable

10. Define booting
    a. Hibernating a **PC**
    b. Process of locking a **PC**
    c. Process of switching on a **PC**
    d. Process of shutting down a computer system
11. Which of the following is a type of system software?
    a. Unix
    b. Windows
    c. Windows 8
    d. Windows 10
12. If a **PC** is failing to boot it gives a series of audible beeps. Where should you start investigating the problem?
    a. Event log
    b. Set up utility
    c. System manual
    d. Manufacturers manual
13. Hardware memory that has been damaged by static electricity will need;
    a. No replacement
    b. Replacing immediately
    c. Replacing during the next maintenance
    d. Replacing depending on the speed of memory
14. Electrostatic discharge is most likely to cause damage to
    a. The user
    b. Computer monitor
    c. Data storage devices
    d. Electronic component
15. Computer error codes produced by **BIOS** could inform an **ICT** technician of:
    a. Hardware failure
    b. Software failure
    c. Software corruption
    d. Incorrect input from user
16. Which of the following operating system in **NOT** in Microsoft family?
    a. Ubuntu
    b. Windows 7
    c. Windows 8
    d. Windows 10
17. Expand the acronym **CLI**
    a. Command line interface
    b. Command line interchange
    c. Communication line interface
    d. Command line interconnection
18. Which of the following is a type of user account?

a. Administrator
b. Computer user account
c. International user account
d. Personal security user account

19. What is the exact location for deleted files on windows computer?
    a. USB stick
    b. Local disk
    c. Dump stick
    d. Recycle bin
20. Select the correct definition for a computer virus;
    a. An ID monitoring tool
    b. Tools used to measure network traffic
    c. A program that improves computer performance
    d. A malicious program that destroys other programs and personal files
21. Which shutdown command stops the computer process and turns off the entire system?
    a. Click start, click ok, click shutdown
    b. Click start, click shutdown, click ok
    c. Click start, click shutdown, click restart
    d. Turn off computer screen, turn off power, click shutdown
22. Which of the following is an example of an input device?
    a. RAM
    b. Printer
    c. Scanner
    d. Speaker
23. Which of the following are parts of the keyboard?
    a. Picture keys, sound keys, arrow keys
    b. Sound keys, alphabetical numerical keys
    c. Arrow keys, numerical keys, picture keys
    d. Numerical keys, functional keys, alphabetical keys
24. Identify a folder used to store unwanted emails
    a. Inbox
    b. Outbox
    c. Sent box
    d. Spam box
25. Which of the following is a method used to secure web or email?
    a. Virus
    b. Firewall
    c. Malware
    d. Phishing
26. What is the main advantage of classifying records?
    a. Retrieval made easy
    b. Deletion made easy
    c. Omission made easy
    d. Misplacement made easy
27. Which of the following is a way of managing files in a computer?
    a. Deleting

b. Creating files
c. Creating folders
d. Transferring the files

28. Which of the following are power ratings used by a computer?
    a. 220AC 50Hz/110VAC 60Hz
    b. 241VAC 40Hz/110VAC 50Hz
    c. 110VAC 45Hz/240VAC 30Hz
    d. 220VAC 40Hz/110VAC 50Hz
29. Which of the following expressions best describes a folder?
    a. A collection of folders
    b. A collection of pictures
    c. A collection of related files
    d. A collection of music videos
30. The following are ways of providing authentication **EXCEPT**
    a. ROM's
    b. Finger prints
    c. Face recognition
    d. Username/password
31. Which of the following is a web browser?
    a. Bing
    b. Yahoo
    c. Wikipedia
    d. Internet explorer
32. Downloading means;
    a. Getting files from the internet
    b. Deleting files from the internet
    c. Transferring files to the internet
    d. Transferring files from storage devices

37. _____is a solvent used to clean electronic components of a computer

    a. Benzene
    b. Salty water
    c. Clean water
    d. Soapy water

38. Identify a type of computer equipment that cannot be assessed.

    a. Cable
    b. Printer
    c. Monitor
    d. Scanner

39. Which of the following is an example of a computer cleaning tool?

    a. Norton
    b. Cable tester
    c. Screw driver
    d. Digital meter

40. The following does not determine how often one should clean a computer

a. Computer user
b. Computer location
c. Administrator account
d. Computer operating environment

41. Compare and contrast a computer virus and a spyware.

_____
_____
_____.

42. Define the following terms;

a. System software
_____
_____
_____.
b. Application software
_____
_____
_____.

43. Describe the following computer ports;

a. VGA port
_____
_____.
b. Parallel port
_____
_____.

48. Differentiate between a computer hardware and software. Give an example of each.

_____
_____
_____

49. Define email

_____
_____.

50. Define partitioning

_____
_____
_____.