DIPLOMA IN INFORMATION TECHNOLOGY (DIT)

SUBJECT: INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)

Written by: Muhammad Latif

03334634508

facebook.com/Muhammad Latif

https://www.youtube.com/c/LatifTech2710

mlatiftech2710@gmail.com

Unit #1

INTRODUCTION TO COMPUTERS

ICT

UNIT #1: INTRODUCTION TO COMPUTERS

Q1. WHAT IS A COMPUTER?

Ans: A computer is an electronic device, which accepts data from input device, process it with electronic speed and shows output on output device.

Q2. DEFINE WHAT IS DATA AND INFORMATION?

Ans: Data: The word Data is the plural from of Latin word 'Datum' which means 'to give' or 'something given'. Collection of facts and figures in raw form is called data. Raw means a thing which is not defined. Data is collected from different sources for different purposes. On the basis of data we cannot take decisions.

Information: The processed from of data is called information. On the basis of information, we can take decisions.

Examples of Data & Information:

- Students names in a class are data while names of student's in alphabetic-order is an information.
- A student's subject marks are data while his percentage, grade and position are information.
- A day's temperature, humidity, wind speed are data while prediction as cold or warm is information.

Q3. WRITE DIFFERENCES BETWEEN DATA AND INFORMATION?

Ans: Data and information are interconnected and closely related to each other. Information cannot be completed without data.

SNO	DATA	INFORMATION
1.	Data is a set of raw facts	Information is processed from of data
2.	Data is used as input in the computer	Information is the output of computer
3.	Data alone is meaningless and valueless.	Information is useful, meaningful and valuable.
4.	Data is difficult or even impossible to reproduce if lost.	Information is easier to reproduce if lost.
5.	Data is an independent entity.	Information depends on data.
6.	Data is asset of organization and is not available for sale.	Information is normally available to people for sale.

Q4. WRITE ADVANTAGES & DISADVANTAGES OF USING COMPUTERS?

Ans: ADVANTAGES OF USING COMPUTER: The benefits of computers are possible because computers have the advantages of speed, reliability, consistency, storage, and communications.

• **Speed:** When data, instructions, and information flow along electronic circuits in a computer, they travel at incredibly fast speeds. Many computers process billions or trillions of operations in a single second.

• **Reliability:** The electronic components in modern computers are dependable and reliable because they rarely break or fail.

• **Consistency:** Given the same input and processes, a computer will produce the same results — consistently. Computers generate error-free results, provided the input is correct and the instructions work.

• **Storage:** Computers store enormous amounts of data and make this data available for processing anytime it is needed.

• **Communications:** Most computers today can communicate with other computers, often wirelessly. Computers allow users to communicate with one another.

DISADVANTAGES OF USING COMPUTERS

Some disadvantages of computers relate to the violation of privacy, public safety, the impact on the labour force, health risks, and the impact on the environment.

• **Violation of Privacy:** In many instances, where personal and confidential records were not properly protected, individuals have found their privacy violated and identities stolen.

• **Public Safety:** Adults, teens, and children around the world are using computers to share publicly their photos, videos, journals, music, and other personal information. Some of these unsuspecting, innocent computer users have fallen victim to crimes committed by dangerous strangers.

• **Impact on Labour Force:** Although computers have improved productivity and created an entire industry with hundreds of thousands of new jobs, the skills of millions of employees have been replaced by computers. Thus, it is crucial that workers keep their education up-to-date.

• **Health Risks:** Prolonged or improper computer use can lead to health injuries or disorders. Computer users can protect themselves from health risks through proper workplace design, good posture while at the computer, and appropriately spaced work breaks.

Q5. EXPLAIN INFORMATION PROCESSING CYCLE (IPOS CYCLE) OR EXPLAIN BLOCK DIAGRAM OF A COMPUTER.

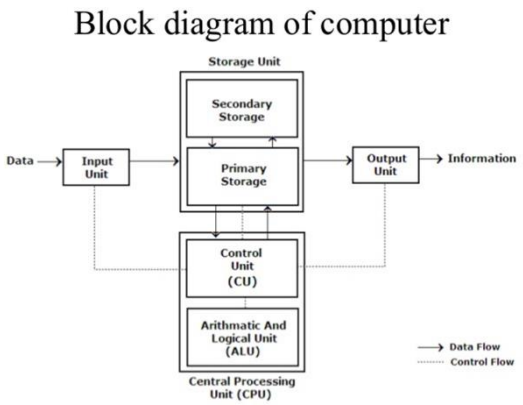
Ans: Computers process data (input) into information (output). A computer often holds data, information, and instructions in storage for future use. Instructions are the steps that tell the computer how to perform a particular task.

i. **Input:** The first step of the data processing cycle is input. The computer accepts data in this step. Data consists of raw facts and figures. Data is entered into the computer for processing. It is entered using different input devices such as keyboard or mouse.

ii. **Processing:** The second step of the data processing cycle is processing. It converts data into information. The central processing unit processes data into information.

iii. **Output:** The third step of the data processing cycle is output. The results are provided to the user in this step. Computer produce two types of outputs;
   a. Softcopy output
   b. Hardcopy output.

Different output devices are used for this purpose.



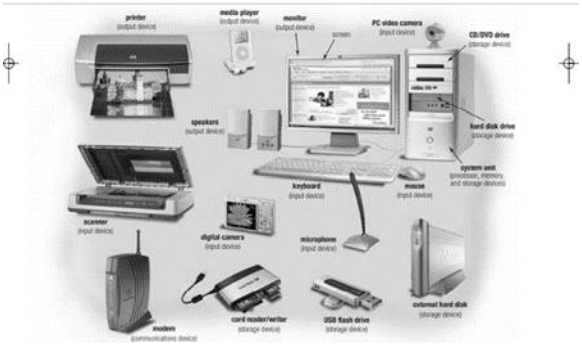
Storage: The fourth step of the data processing cycle is storage. It stores data, information and programs used by the computer system. It is performed by different storage device such as hard disks, CD, DVD, USB flash memory.

Q6. WRITE DOWN THE COMPONENTS OF A COMPUTER?

Ans: A computer contains many components known as hardware. These components include input devices, output devices, a system unit, storage devices, and communications devices.

i. INPUT DEVICES

An input device is any hardware component that allows you to enter data and instructions into a computer. Six widely used input devices are the keyboard, mouse, microphone, scanner, digital camera, and PC video camera



ii. OUTPUT DEVICES

An output device is any hardware component that conveys information to one or more people. Four commonly used output devices are a printer, a monitor, speakers, and a portable media player.

iii. SYSTEM UNIT

The system unit is a case that contains electronic components of the computer that are used to process data. These parts are connected to a circuit board called the motherboard. Two main components on the motherboard are the processor and memory.

iv. STORAGE DEVICES

Storage holds data, instructions, and information for future use. For example, computers can store hundreds or millions of customer names and addresses. Storage holds these items permanently. A computer keeps data, instructions, and information on storage media.

Examples of storage media are USB flash drives, hard disks, CDs, DVDs, and memory cards.

v. COMMUNICATIONS DEVICES

A communications device is a hardware component that enables a computer to send (transmit) and receive data, instructions, and information to and from one or more computers. A widely used communications device is a modem.

Q7. DEFINE WHAT IS NETWORK AND THE INTERNET?

Ans: Network: A network is a collection of computers and devices connected together, often wirelessly, via communications devices and transmission media. When a computer connects to a network, it is online. Networks allow computers to share resources, such as hardware, software, data, and information. Sharing resources saves time and money.

Internet: The Internet is a worldwide collection of networks that connects millions of businesses, government agencies, educational institutions, and individuals. More than one billion people around the world use the Internet daily for a variety of reasons, including the following:

- To communicate with and meet other people;
- To access a wealth of information, news, and research findings;
- To shop for goods and services;
- To bank and invest;
- To take a class;
- To access sources of entertainment, such as online games, music, videos, books, and magazines; to download music and videos; and to share information.

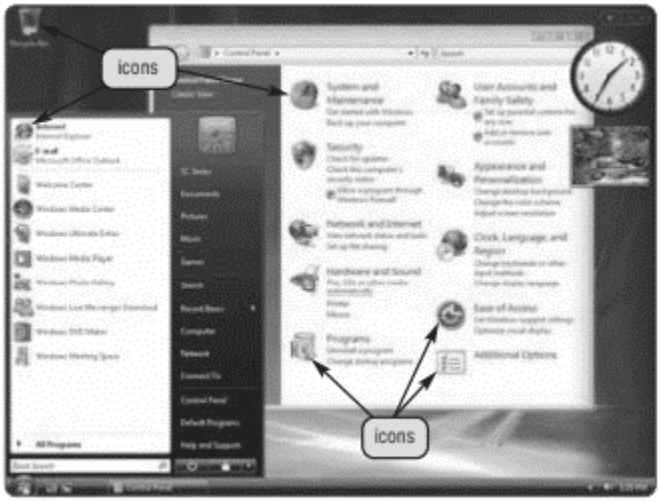
Q8. DEFINE COMPUTER SOFTWARE & ITS TYPES?

Ans: Software, also called a program, is a series of instructions that tells the computer what to do and how to do it. You interact with a program through its user interface. Software today often has a graphical user interface.

TYPES OF SOFTWARE:

The two categories of software are system software and application software.

i. SYSTEM SOFTWARE



System 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. Two types of system software are the operating system and utility programs.

a. Operating System

An operating system is a set of programs that coordinates all the activities among computer hardware devices. It provides a means for users to communicate with the computer and other software. When a user starts a computer, portions of the operating system load into memory from the computer's hard disk. It remains in memory while the computer is on.

b. Utility Program

A utility program allows a user to perform maintenance-type tasks usually related to managing a computer, its devices, or its programs.

ii. APPLICATION SOFTWARE

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

- Popular application software includes word processing software, spreadsheet software, database software, and presentation graphics software.
- Many other types of application software exist that enable users to perform a variety of tasks. These include computer-aided design, desktop publishing, paint/image editing, audio and video editing, multimedia authoring, Web page authoring, and entertainment (e.g., games), you often purchase application software from a store that sells computer products.
- A widely used type of application software related to communications is A Web browser, which allows users with an Internet connection to access and view Web pages.

Q9. HOW TO INSTALL & RUN A PROGRAM (SOFTWARE)?

Ans: The instructions in a program are stored on storage media such as a hard disk or compact disc. When purchasing software from a computer store, you typically receive a box that includes a CD(s) or DVD(s) that contains the program. You also may receive a manual or printed instructions explaining how to install and use the software.

Installing a Program

Installing is the process of setting up software to work with the computer, printer, and other hardware components. When you buy a computer, it usually has some software preinstalled on its hard disk. This enables you to use the computer the first time you turn it on. To begin installing additional software

from a CD or DVD, insert the program disc in a CD or DVD drive. The computer then copies the program from the disc to the computer's hard disk

Running a Program

Once software is installed, you can use, or run, it. When you instruct the computer to run an installed program, the computer loads it, which means the program is copied from storage to memory. Once in memory, the computer can carry out, or execute, the instructions in the program.

Q10. WHAT IS SOFTWARE DEVELOPMENT?

Ans: A programmer, sometimes called a developer, is someone who develops software or writes the instructions that direct the computer to process data into information. Complex programs can require thousands to millions of instructions. Programmers use a programming language or program development tool to create computer programs. Popular programming languages include C++, Visual C#, Visual Basic, JavaScript, Java and Python.

Q11. EXPLAIN TYPES / CATEGORIES OF COMPUTERS?

Ans: Computers are categorized into following seven categories:

1. Personal computers,
2. Mobile computers and Mobile devices,
3. Game consoles,
4. Servers,
5. Mainframes,
6. Supercomputers, and
7. Embedded computers.

A computer's size, speed, processing power, and price determine the category it best fits. Due to rapidly changing technology, however, the distinction among categories is not always clear-cut.

1. Personal Computer: A personal computer is a computer that can perform all of its input, processing, output, and storage activities by itself. A personal computer contains a processor, memory, and one or more input, output, and storage devices. They also often contain a communications device. Two types of personal computers are desktop computers and laptop computers.

FIGURE 1-13 The PC and PC-compatible computers usually use a Windows operating system.

FIGURE 1-14 Apple computers, such as the iMac, usually use a Macintosh operating system.

DESKTOP COMPUTERS: A desktop computer is designed so the system unit, input devices, output devices, and any other devices fit entirely on or under a desk or table. In some models, the monitor sits on top of the system unit, which is placed on the desk. The more popular style of system unit is the tall and narrow tower, which can sit on the floor vertically.

2. Mobile Computers: A mobile computer is a personal computer you can carry from place to place. Similarly, a mobile device is a computing device small enough to hold in your hand. The most popular type of mobile computer is the notebook computer.

a. Notebook Computers: A notebook computer, also called a laptop computer, is a portable, personal computer designed to fit on your lap. Notebook computers are thin and lightweight, yet can be as powerful as the average desktop computer. These computers weigh on average between 2.5 and 9 pounds, which allows users easily to transport the computers from place to place. Most notebook computers can operate on batteries or a power supply or both.

b. Tablet PC: The Tablet PC is a special type of notebook computer that allows you to write or draw on the screen using a digital pen. Tablet PCs are useful especially for taking notes in locations where the standard notebook computer is not practical

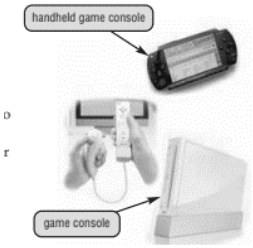
Mobile Devices: Mobile devices, which are small enough to carry in a pocket, usually store programs and data permanently on memory inside the system unit or on small storage media such as memory cards. You often can connect a mobile device to a personal computer to exchange information. Three popular types of mobile devices are handheld computers, PDAs, and smart phones.

i. Handheld Computer: A handheld computer, sometimes referred to as an ultra-personal computer (uPC), or an Ultra-Mobile PC (UMPC), or a hand top computer, is a computer small enough to fit in one hand.

ii. PDA: A PDA (personal digital assistant) provides personal organizer functions such as a calendar, an appointment book, an address book, a calculator, and a notepad. Many PDAs are Internet-enabled so users can check e-mail and access the Web. Some also provide camera and telephone capabilities. The primary input device of a PDA is the stylus, which looks like a small ballpoint pen, but uses pressure instead of ink to write and draw.

iii. Smart Phone: Offering the convenience of one-handed operation, a smart phone is an Internet-enabled telephone that usually also provides PDA capabilities. In addition to basic telephone capabilities,

- a smart phone allows you to send and receive e-mail messages,
- access the Web,
- listen to music, and
- share photographs or videos

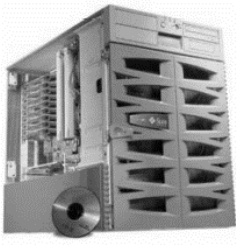


3. GAME CONSOLES: A game console is a mobile computing device designed for single-player or multiplayer video games. Standard game consoles use

- a handheld controller(s) as an input device(s);
- a television screen as an output device; and
- hard disks, CDs, DVDs, and/or memory cards for storage.

Three popular models are Microsoft's Xbox 360, Nintendo's Wii, and Sony's PlayStation 3.

4. SERVERS: A server controls access to the hardware, software, and other resources on a network and provides a centralized storage area for programs, data, and information Servers support from two to several thousand connected computers at the same time. People use personal computers or terminals to access data, information, and programs on a server. A terminal is a device with a monitor, keyboard, and memory.



5. MAINFRAMES: A mainframe is a large, expensive, powerful computer that can handle hundreds or thousands of connected users simultaneously. Mainframes store huge amounts of data, instructions, and information. Most major corporations use mainframes for business activities. With mainframes,

large businesses are able to bill millions of customers, prepare payroll for thousands of employees, and manage thousands of items in inventory. One study reported that mainframes process more than 83 percent of transactions around the world. People also can access programs on the mainframe using terminals or personal computers

6. SUPERCOMPUTERS: A supercomputer is the fastest, most powerful computer — and the most expensive. The fastest supercomputers are capable of processing more than 135 trillion instructions in a single second. Applications requiring complex, sophisticated mathematical calculations use supercomputers. Large scale simulations and applications in medicine, aerospace, automotive design, online banking, weather forecasting, nuclear energy research, and petroleum exploration use a supercomputer.

7. EMBEDDED COMPUTERS: An embedded computer is a special-purpose computer that functions as a component in a larger product. A variety of everyday products contain embedded computers:

- Consumer electronics
- Home automation devices
- Automobiles
- Process controllers and robotics
- Computer devices and office machines

Q12.ELABORATE COMPUTER APPLICATIONS IN SOCIETY?

Ans: The computer has changed society today people interact directly with computers in fields such as education, finance, government, health care, science, publishing, travel, and manufacturing.

i. Education

Education is the process of acquiring knowledge. In the traditional model, people learn from other people such as parents, teachers, and employers. Many forms of printed material such as books and manuals are used as learning tools. Today, educators also are turning to computers to assist with education. Many schools and companies equip labs and classrooms with computers. Some schools require students to have a notebook computer or PDA to access the school's network or Internet wirelessly.

ii. Finance

Many people and companies use computers to help manage their finances. Some use finance software to balance checkbooks, pay bills, track personal income and expenses, manage investments, and evaluate financial plans. This software usually includes a variety of online services. For example, computer users can track investments and do online banking .With online banking, users access account balances, pay bills, and copy monthly transactions from the bank's computer right into their computers.

iii. Government

A government provides provide citizens with up-to-date information, most government offices have Web sites. People access government Web sites to file taxes, apply for permits and licenses, pay parking tickets, report crimes, apply for financial aid, and renew vehicle registrations and driver's licenses

iv. Health Care

Nearly every area of health care uses computers. Whether you are visiting a family doctor for a regular checkup, having lab work or an outpatient test, or being rushed in for emergency surgery, the medical staff around you will be using computers for various purposes:

- Hospitals and doctors use computers to maintain patient records.
- Computers monitor patients' vital signs in hospital rooms and at home.

- Doctors use the Web and medical software to assist with researching and diagnosing health conditions.

An exciting development in health care is telemedicine, which is a form of long-distance health care. Through telemedicine, health-care professionals in separate locations conduct live conferences on the computer.

v. Science

All branches of science, use computers to assist them with collecting, analysing, and modeling data. Scientists also use the Internet to communicate with colleagues around the world. Breakthroughs in surgery, medicine, and treatments often result from scientists' use of computers. Tiny computers now imitate functions of the central nervous system, retina of the eye, and cochlea of the ear. A cochlear implant allows a deaf person to listen. Cameras small enough to swallow — sometimes called a camera pill — take pictures inside your body to detect polyps, cancer, and other abnormalities.

vi. Publishing

Publishing is the process of making work available to the public. These works include books, magazines, newspapers, music, film, and video. Special software assists graphic designers in developing pages that include text, graphics, and photographs; artists in composing and enhancing songs; filmmakers in creating and editing film; and journalists and mobile users in capturing and modifying video clips. Many publishers make their works available online Some Web sites allow you to copy the work, such as a book or music, to your desktop computer, handheld computer, PDA, or smart phone.

vii. Travel

Many vehicles manufactured today include some type of on board navigation system. Some mobile users prefer to carry specialized handheld navigation devices. In preparing for a trip, you may need to reserve a car, hotel, or flight. Many Web sites offer these services to the public. For example, you can order airline tickets on the Web. If you plan to drive somewhere and are unsure of the road to take to your destination, you can print directions and a map from the Web

viii. Manufacturing

Computer-aided manufacturing (CAM) refers to the use of computers to assist with manufacturing processes such as fabrication and assembly. Often, robots carry out processes in a CAM environment. CAM is used by a variety of industries, including oil drilling, power generation, food production, and automobile manufacturing. Automobile plants, for example, have an entire line of industrial robots that assemble a car.

EXERCISE

OBJECTIVE TYPE QUESTIONS

1. State True or False.

i. Most people do not believe that computer literacy is vital to success. (**True/False)**

ii. A computer contains many electric, electronic, and mechanical components known as software. **(True/False)**

iii. With a graphical user interface, you interact with the software using text, graphics, and visual images such as icons. **(True/False)**

iv. A notebook computer is a computer small enough to fit in one hand. **(True/False)**

v. System software serves as the interface between the user, the application software, and the computer's hardware. (**True/False)**

2. Choose the correct answer.

i. Computer literacy involves having a knowledge and understanding of _____.
   A. Computer programming B. Computers and their uses
   C. Computer Repair D. all of the above

ii. Three commonly used _____ devices are a keyboard, a mouse, and a microphone.
   A. Storage B. Output
   C. Input D. Mobile

iii. Two types of _____ are desktop computers and notebook computers.
   A. Servers B. Personal Computers
   C. Mainframe Computers D. Supercomputers

iv. Three popular types of _____ are handheld computers, PDAs, and smart phones.
   A. Mobile devices B. Notebook computers
   C. Desktop computers D. Tower computers

v. When using _____ , users access account balances, pay bills, and copy monthly transactions from a bank's computer right into their personal computers.
   A. E-commerce B. Personal Finance Software
   C. Online banking d. Accounting software

3. Fill in the blanks with suitable words

Memory Utility Programs Handtop computers IPOS Processor

i. _____ is the electronic component that interprets and carries out the basic instructions for a computer.

ii. _____ a computer small enough to fit in one hand.

iii. _____ electronic components store instructions waiting to be executed.

iv. _____ is the series of input, process, output, and storage activities.

v. _____ allows a user to perform maintenance-type tasks usually related to managing a computer, its devices, or its programs.

SUBJECTIVE TYPE QUESTIONS

I. Short Questions:

1. Answer the following short questions.

i. Define what is computer?
ii. Define Data & Information
iii. Differentiate between Data & Information
iv. Draw and explain block diagram of a computer
v. Write down the components of a computer system

II. Long Questions:

2. Answer the following long questions.

i. Write down advantages and disadvantages of using computers
ii. Define what is Network & Internet? Why we use Internet?
iii. Briefly explain computer software and its types.
iv. Explain types of computers in detail.
v. Elaborate computer application in society.

Unit #2

The Components of the System Unit

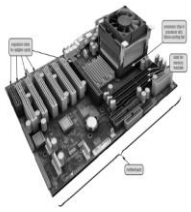
ICT

UNIT #2: THE COMPONENTS OF THE SYSTEM UNIT

Q1. WHAT IS SYSTEM UNIT?

Ans: The system unit is a case that contains electronic components of the computer used to process data. System units are available in a variety of shapes and sizes. The case of the system unit is made of metal or plastic and protects the internal electronic components from damage. All computers have a system unit.

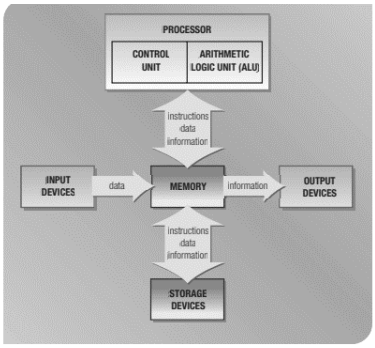
Q2. WHAT IS MOTHERBOARD?



Ans: The motherboard, sometimes called a system board, is the main circuit board of the system unit. Many electronic components attach to the motherboard; others are built into it. It shows expansion slots, processor chip, and memory slots. Memory chips are installed on memory cards (modules) that fit in a slot on the motherboard.

Q3. WHAT IS PROCESSOR?

Ans: The processor, also called the central processing unit (CPU), interprets and carries out the basic instructions that operate a computer. The processor significantly impacts overall computing power and manages most of a computer's operations. On a personal computer, all functions of the processor usually are on a single chip. Processors contain a control unit and an arithmetic logic unit (ALU). These two components work together to perform processing operations.



The Control Unit

The control unit is the component of the processor that directs and coordinates most of the operations in the computer. The control unit has a role much like a traffic cop: it interprets each instruction issued by a program and then initiates the appropriate action to carry out the instruction.

The Arithmetic Logic Unit

The arithmetic logic unit (ALU), another component of the processor, performs arithmetic, comparison, and other operations. Arithmetic operations include basic calculations such as addition, subtraction, multiplication, and division. Comparison operations involve comparing one data item with another to determine whether the first item is greater than, equal to, or less than the other item. Depending on the result of the comparison, different actions may occur.

Q4. DEFINE MACHINE CYCLE?

Ans: Machine Cycle: For every instruction, a processor repeats a set of four basic operations, which comprise a machine cycle;

(1) Fetching,
(2) Decoding,
(3) Executing, and,
(4) Storing.

1. Fetching is the process of obtaining a program instruction or data item from memory.
2. Decoding refers to the process of translating the instruction into signals the computer can execute.
3. Executing is the process of carrying out the commands.
4. Storing, in this context, means writing the result to memory (not to a storage medium).

Q5. WHAT IS SYSTEM CLOCK?

Ans: The System Clock: The processor relies on a small quartz crystal circuit called the system clock to control the timing of all computer operations. Just as your heart beats at a regular rate to keep your body functioning, the system clock generates regular electronic pulses, or ticks, that set the operating pace of components of the system unit.

The pace of the system clock, called the clock speed, is measured by the number of ticks per second. Current personal computer processors have clock speeds in the gigahertz range. Giga is a prefix that stands for billion, and a hertz is one cycle per second. Thus, one gigahertz (GHz) equals one billion ticks of the system clock per second. The speed of the system clock is just one factor that influences a computer's performance.

Q6. COMPARISON OF PERSONAL COMPUTER PROCESSORS

Ans: The leading processor chip manufacturers for personal computers are Intel, AMD (Advanced Micro Devices), Transmute, IBM, and Motorola. These manufacturers often identify their processor chips by a model name or model number.

With its earlier processors, Intel used a model number (8080,80186,80286,80386) to identify the various chips. After learning that processor model numbers could not be trademarked and protected from use by competitors, Intel began identifying its processors with names.

Most high-performance desktop PCs today use a processor in the Intel Core family or the Pentium family. Less expensive, basic PCs today use a brand of Intel processor in the Celeron family. The Xeon and Itanium families of processors are ideal for workstations and low-end servers.

AMD is the leading manufacturer of Intel-compatible processors, which have an internal design similar to Intel processors, perform the same functions, and can be as powerful, but often are less expensive. Intel and Intel-compatible processors are used in PCs.

Apple computers used only an IBM processor or a Motorola processor, which had a design different from the Intel-style processor.

Q7. EXPLAIN COMPUTER MEMORY?

Ans: A computer memory is any kind of physical device capable of storing information either temporarily or permanently. Memory consists of instructions and data saved into computer through CPU. The performance of computer mainly based on the CPU and memory.

Types of Computer Memory

1. Primary or Main or Internal Memory
2. Secondary or Auxiliary or Backing Storage Memory

Units of Memory

The following are basic memory measurements units.

- Bit
- Byte
- Memory Word

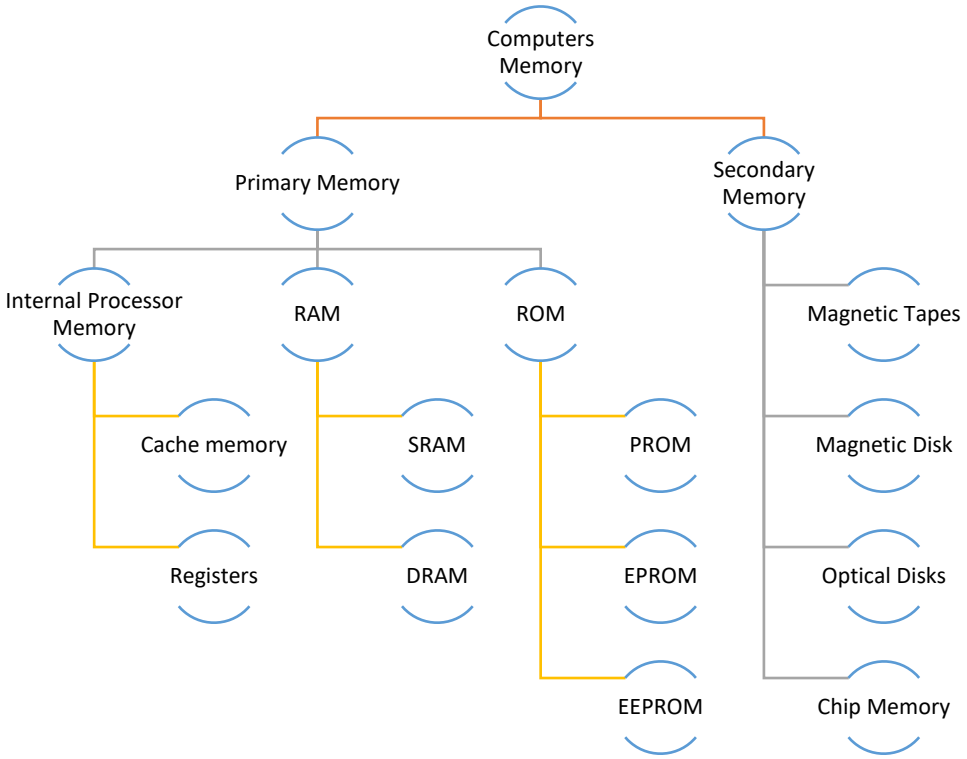
Bit: A bit or Binary Digit is a basic unit of information in computing. A bit is the smallest unit of information a computer can recognize. A bit can represent only one of two values, either '0' or '1'. Computer represents information in binary code, written in sequences of 0s and 1s.

Byte: A byte is a unit of data that is eight bits long. A byte is the unit most computers use to represent a character such as an alphabet, a number or a special sign etc. computers memory is measured in multiples of bytes.

Memory Word: A word is a simply fixed sized group of bits that are handled together by the system. Modern computers usually have a word size of 32 or 64 bits.

Unit	Representation	Description
1 Kilo Byte (KB)	2^{10} Bytes	1024 Bytes
1 Mega Byte (MB)	2^{20} Bytes	1024 Kilo Byte
1 Giga Byte (GB)	2^{30} Bytes	1024 Mega Byte
1 Tera Byte (TB)	2^{40} Bytes	1024 Giga Byte
1 Peta Byte (PB)	2^{50} Bytes	1024 Tera Byte

Q8. EXPLAIN TYPES OF COMPUTER MEMORY.
Ans: TYPES OF COMPUTER MEMORY:



Primary Memory: Main Memory or Primary Memory is the part of the computer that holds data and instructions for processing. Computer internal memory is used to store data that is used by the system at startup and to run various types of programs such as the operating system. Computer memory is normally several gigabytes. When users run software from a storage medium it is loaded to the main memory first and then it is executed. CPU gets programs from the main memory for processing

Volatile Memory: Volatile Memory: A computer memory that requires power (electricity) to maintain the stored information. It retains the information as long as power supply remains ON, but when power supply turns OFF or interrupted, the stored data is lost. Also known as temporarily memory. Examples: RAM and Registers.
Non-Volatile Memory: It is a permanent memory that can retain the stored information even if power supply is OFF. It is typically used for secondary storage or long-term storage for future use.
Examples: ROM, Flash Memory, Magnetic Storage Devices, Optical Disks and SSDs.

Fundamental Types of Main Memory
1. Internal Processor Memory
2. RAM
3. ROM
Internal Processor Memory: These are directly accessible to the CPU and extremely fast. These are;
i. Cache Memory
ii. Registers

- **Cache:** (pronounced as cash) memory is an extremely fast memory that is built into a computer's CPU, or located next to it on a separate chip. When any information is required by the processor first it will look up in the cache memory, and if not fetch from RAM. There are two main levels of cache memory.

1. L1 cache: It is built into the processor. It is the fastest memory and closest to the CPU but very expensive and small in size (8 MB)
2. L2 cache: It is use to constantly read in slightly larger quantities of data from RAM, so these are available to the L1. It is normally (64 KB to 16 MB).
Registers
These are high-speed temporary storage locations used to hold data and instructions. The size of the register states that how much information can be processed by a processor at once. The size of register can be 16, 32 or 64 bits. The main registers are:

- Accumulator Register (AC)
- Status Register
- Instruction Register
- Program Counter
- Buffer Register

What is RAM (Random Access Memory)?
RAM is a volatile memory that can retain information only when system power is ON. When power goes OFF then all the data in RAM will be lost. It is also called internal memory, primary memory or system memory. The data stored in RAM randomly instead of sequentially that is why it is fast.
Types of RAM;
1. Static RAM (SRAM)
2. Dynamic RAM (DRAM)

What is ROM?
ROM stands for Read Only Memory. ROM is nonvolatile memory that is information stored in it is not lost even if the power supply goes OFF. It is used for permanent storage of information. It also possesses random access property. Information cannot be written into a ROM by the user/programmer. Contents of ROM are decided by the manufactures.
Types of ROM;
1. PROM
2. EPROM

3. EEPROM or E^{2}PROM

What is PROM?

PROM stands for Programmable Read Only Memory.

It is type of ROM which can be programmed once and then can never be changed. PROM manufactured blank and then it is programmed just once by "blowing" its fuse. This process is inevasible. The data is fed into it using a PROM program.

What is EPROM?

EPROM stands for Erasable Programmable Read Only Memory.

The data stored in EPROM can be erased by exposing it to the Ultra Violet (UV) light for about 20 minutes.

What is EEPROM?

EEPROM stands for Electrically Erasable Programmable Read Only Memory.

It is a chip that can be erased and reprogrammed on the board. It can be erased in few milliseconds. It can be reprogrammed 10,000 times. Flash drive is a type of EEPROM.

What is Secondary Memory?

It is used to hold data or information permanently. It is also called auxiliary storage, external storage or backing storage. It lies outside the CPU. It does not lose the data when the device is powered-OFF and it is non-volatile.

Examples:

Hard Disk Drive, CD, DVD, SSD. Flash Memory and Flash Cards

Q9. WHAT IS EXPANSION SLOTS AND ADAPTER CARDS?

Expansion Slot: An expansion slot is a socket on the motherboard that can hold an adapter card.

Adapter Card: An adapter card, sometimes called an expansion card, is a circuit board that enhances functions of a component of the system unit and/or provides connections to peripherals.

Peripheral Device: A peripheral is a device that connects to the system unit and is controlled by the processor in the computer. Examples of peripherals are modems, disk drives, printers, scanners, and keyboards.

TYPES OF ADAPTER CARDS:

ADAPTER CARD	PURPOSE
Disk controller	Connects disk drives
FireWire	Connects to FireWire devices
MIDI	Connects musical instruments
Modem	Connect other computers through telephone or cable television lines
Network	Connects others computers and peripherals
PC-to-TV converter	Connects a television
TV tuner	Allows viewing of television channels on the monitor
USB	Connects to USB devices
Video	Connects a monitor
Video capture	Connects a camcorder
Sound card	Connects speakers and headphones

Q10. WHAT IS DRIVE BAYS IN COMPUTERS?

Ans: Drive bays are specific slots in a computer case where you can install storage devices like hard drives or solid-state drives (SSDs). They typically have connectors for data transfer and power, enabling the installed drives to function properly and be accessible by the computer's operating system.

Q11. DEFINE FLASH MEMORY CARDS, USB FLASH DRIVES, PC CARDS?

Four widely used types of removable flash memory devices include flash memory cards, USB flash drives, PC Cards, and ExpressCard modules.

i. Flash Memory Card: A flash memory card is a removable flash memory device, usually no bigger than 1.5" in height or width that you insert and remove from a slot in a computer, mobile device, or card reader/writer Many mobile and consumer devices, such as PDAs, smart phones, digital cameras, and portable media players use these memory cards. Storage capacities of flash memory cards range from 64 MB to 8 GB.

ii. USB: A USB flash drive is a flash memory storage device that plugs in a USB port on a computer or portable device. The first USB flash drive came on the market in 2000 with a storage capacity of 8 megabytes (MB). Drives now come in capacities ranging between 8 gigabytes (GB) and 1 terabyte (TB), depending on manufacturer, and future capacity levels are expected to reach 2 TB.

3. PC Cards: Many computers have a PC Card slot or an ExpressCard slot, which is a special type of expansion slot that holds a PC Card or an ExpressCard module, respectively. A PC Card is a thin, credit card-sized removable flash memory device that primarily is used today to enable notebook computers to access the Internet wirelessly.

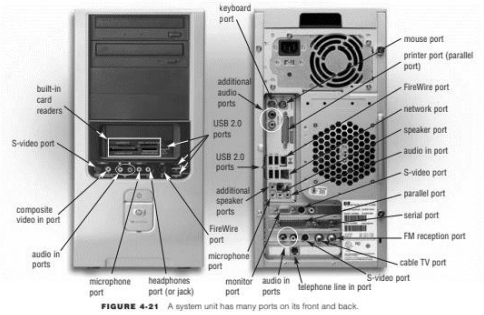


FIGURE 4-21 A system unit has many ports on its front and back.

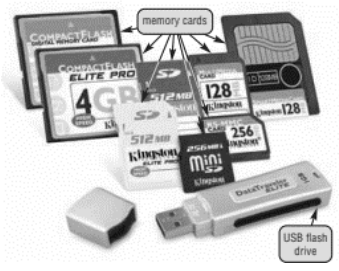
Q12. EXPLAIN PORTS AND CONNECTORS

Port: A port is the point at which a peripheral attach to or communicates with a system unit so the peripheral can send data to or receive information from the computer. An external device, such as a keyboard, monitor, printer, mouse, and microphone, often attaches by a cable to a port on the system unit. Instead of port, the term jack sometimes is used to identify audio and video ports. The front and back of the system unit contain many ports. Desktop personal computers may have a serial port, a parallel port, several USB ports, and a FireWire port.

i. **Serial Ports:** A serial port is a type of interface that connects a device to the system unit by transmitting data one bit at a time. Serial ports usually connect devices that do not require fast data transmission rates, such as a mouse, keyboard, or modem. COM port (short for communications port) on the system unit is one type of serial port.

ii. **Parallel Ports:** Unlike a serial port, a parallel port is an interface that connects devices by transferring more than one bit at a time. Parallel ports originally were developed as an alternative to the slower speed serial ports. The parallel port can transfer eight bits of data (one byte) simultaneously through eight separate lines in a single cable.

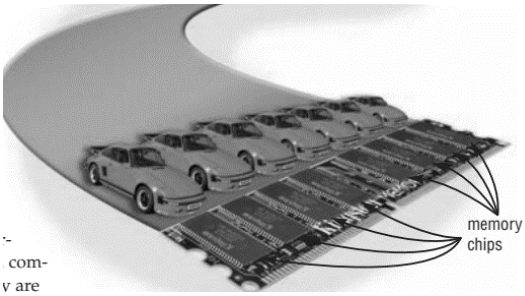
iii. **USB Ports:** A USB port, short for universal serial bus port, can connect up to 127 different peripherals together with a single connector. Devices that connect to a USB port include the following: mouse, printer, digital camera, scanner, speakers, portable media player, CD, DVD, smart phone, PDA, game console, and removable hard disk. Personal computers typically have six to eight USB ports on the front and/or back of the system unit .



iv. **FireWire Ports:** Previously called an IEEE 1394 port, a FireWire port is similar to a USB port in that it can connect multiple types of devices that require faster data transmission speeds, such as digital video cameras, color printers, scanners, digital cameras, and DVD drives, to a single connector. A

FireWire port allows you to connect up to 63 devices together. devices. Ports such as USB and FireWire are replacing all other types of ports.

Q12. DEFINE WHAT IS COMPUTER BUSES?



Ans: A computer processes and stores data as a series of electronic bits. These bits transfer internally within the circuitry of the computer along electrical channels. Each channel, called a bus, allows the various devices both inside and attached to the system unit to communicate with each other. Just as vehicles travel on a highway to move from one destination to another, bits travel on a bus.

Buses transfer bits from input devices to memory, from memory to the processor, from the processor to memory, and from memory to output or storage devices.

Buses consist of two parts:

- A data bus: The data bus transfers actual data and
- The address bus transfers information about where the data should reside in memory.

The size of a bus, called the bus width, determines the number of bits that the computer can transmit at one time. For example, a 32-bit bus can transmit 32 bits (4 bytes) at a time. On a 64-bit bus, bits transmit from one location to another 64 bits (8 bytes) at a time. The larger the number of bits handled by the bus, the faster the computer transfers data. Most personal computers today use a 64-bit bus.

Q13. EXPLAIN POWER SUPPLY

Ans: Many personal computers plug in standard wall outlets, which supply an alternating current (AC) of 115 to 120 volts. This type of power is unsuitable for use with a computer, which requires a direct current (DC) ranging from 5 to 12 volts. The power supply is the component of the system unit that converts the wall outlet AC power into DC power.

Some external peripherals such as an external modem, speakers, or a tape drive have an AC adapter, which is an external power supply. One end of the AC adapter plugs in the wall outlet and the other end attaches to the peripheral. The AC adapter converts the AC power into DC power that the peripheral requires

Q14. WHAT IS CMOS (COMPLEMENTARY METAL-OXIDE SEMICONDUCTOR?)

Ans: Some RAM chips, flash memory chips, and other types of memory chips use complementary metal-oxide semiconductor technology because it provides high speeds and consumes little power. CMOS technology uses battery power to retain information even when the power to the computer is off. Battery-backed CMOS memory chips, for example, can keep the calendar, date, and time current even when the computer is off.

EXERCISE

OBJECTIVE TYPE QUESTIONS

1. State True / False

1. System unit is a case that contains electronic components of the computer **True/False)** used to process data.
2. The motherboard is the main circuit board of the system unit. (**True/False)**
3. The arithmetic logic unit directs and coordinates most of the operations (**True/False)** in the computer.
4. A byte is the smallest unit of data the computer can process. (**True/False)**
5. A gigabyte is larger than a megabyte. (**True/False)**
6. The first USB flash drive came on the market in 2000. (**True/False)**
7. Serial ports usually connect devices that require fast transmission rates. (**True/False)**
8. FireWire is used to connect Digital camera. (**True/False)**
9. The power supply is the component of the system unit that converts (**True/False)** AC power into DC power.
10. The size of a bus, also called the bus width. (**True/False)**

2. Choose the correct answer

1. On _____, the display often is built into the system unit.
   A. Desktop Personal Computers B. Notebook Computers
   C. Mobile Computers and Devices D. All of these.
2. The _____ is the component of the processor that directs and coordinates most of the operations in the computer.
   A. Register B. Arithmetic Logic Unit
   C. Control Unit D. Machine Cycle
3. Less expensive, basic PCs use a brand of Intel processor in the _____ family.
   A. Pentium B. Xeon
   C. Celeron D. Itanium
4. A __ port is an interface that connects devices by transferring more than one bit at a time.
   A. Serial B. Parallel
   C. USB D. Mouse
5. 1 Mega Byte equals to:
   A. 1000 bytes B. 1024 bytes
   C. 1024 KB D. None of these

3. Fill in the blanks with suitable words

127 ALU System Unit Four Motherboard

1. The _____ is a case that contains electronic components of the computer.
2. Many electronic components attach to the _____.
3. _____ performs arithmetic and logical operations.
4. A processor repeats a set of _____ basic operations.
5. A USB can connect up to _____ different peripherals

DESCRIPTIVE TYPE QUESTIONS

1. Answer the following short questions

i. Define what is system unit?
ii. Define what is motherboard?
iii. Explain steps involve in machine cycle
iv. Differentiate between Dual Core and Multicore processors.
v. Explain what is power supply?

2. Answer the following long questions

i. Define processor and its components.
ii. Compare different personal computers processors.
iii. Explain computers memory.
iv. Explain ports and connectors
v. Define and explain computer buses.

Unit #3

Input and Output Devices

ICT

UNIT #3: INPUT AND OUTPUT DEVICES

Q1. WHAT IS INPUT? EXPLAIN DIFFERENT INPUT DEVICES.

Ans: Input: Input is any data and instructions entered into the memory of a computer. People have a variety of options for entering input into a computer. An input device is any hardware component that allows users to enter data and instructions into a computer.

LIST OF INPUT DEVICES

1. Keyboard
2. Pointing Devices
    a. Mouse
    b. Trackball
    c. Touchpad
    d. Touchscreen
    e. Joysticks
3. Pen Based Derives
    a. Pen Input
4. Data Scanning Devices
    a. Scanner
    b. MICR
    c. BCR
    d. OMR
    e. MAGNETIC STRIPE CARD READERS
5. Digital Camera
6. Video Input
7. Terminal
8. Biometric Input

1. KEYBOARD: Many people use a keyboard as one of their input devices. A keyboard is an input device that contains keys users press to enter data and instructions into a computer. All computer keyboards have a typing area that includes the letters of the alphabet, numbers, punctuation marks, and other basic keys. Many desktop computer keyboards also have a numeric keypad on the right side of the keyboard.

Desktop computer keyboards often attach via a cable to a serial port, a keyboard port, or a USB port on the system unit. A wireless keyboard, or cordless keyboard, is a battery-powered device that transmits data using wireless technology, such as radio waves or infrared light waves.

2. Pointing Devices

a. **Mouse:** A mouse is a pointing device that fits comfortably under the palm of your hand. With a mouse, users control the movement of the pointer. As you move a mouse, the pointer on the screen also moves. Generally, 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. Electronic circuits in the mouse translate the movement of the mouse into signals the computer can process. A mechanical mouse is placed on a mouse pad, which is a rectangular rubber or foam pad that provides better traction than the top of a desk.

b. 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**.**

c. 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. On most touchpads, you also can tap the pad's surface to imitate mouse operations such as clicking. Touchpads are found most often on notebook computers.

d. Touch Screen: A touch screen is a touch-sensitive display device. Users can interact with these devices by touching areas of the screen. Users touch words, pictures, numbers, letters, or locations identified on the screen. Kiosks, which are freestanding computers, often have touch screens. Many handheld game consoles also have touch screens.

e. **Joysticks:** Users running game software or flight and driving simulation software often use a joystick or wheel to control an airplane, vehicle, or player. A joystick is a handheld vertical lever mounted on a base. You move the lever in different directions and press buttons to control the actions of the simulated vehicle or player. Joysticks typically attach via a cable to a personal computer or game console.

3. Pen Based Devices

a. **Pen Input:** Mobile users often enter data and instructions with a pen-type device. With pen input, users write, draw, and tap on a flat surface to enter input. The surface may be a monitor, a screen, a special type of paper, or a graphics tablet. Two devices used for pen input are the stylus and digital pen. A stylus is a small metal or plastic device that looks like a tiny ink pen but uses pressure instead of ink.

4. Data Scanning Devices

a. **Scanner: OPTICAL SCANNERS:** An optical scanner, usually called a 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 flatbed scanner works in a manner similar to a copy machine except it creates a file of the document in memory instead of a paper copy Once you scan a picture or document, you can display the scanned object on the screen, modify its appearance, store it on a storage medium, print it, fax it, attach it to an e-mail message, include it in another document, or post it to a Web site or photo community for everyone to see.

b. **MICR: (Magnetic Ink Character Reader)** is a character-recognition technology used mainly by the banking industry to ease the processing and clearance of cheques and other documents. The MICR encoding, called the *MICR line*, is at the bottom of cheques and other vouchers and typically includes the document-type indicator, bank code, bank account number, cheque number, cheque amount, and a control indicator. The technology allows MICR readers to scan and read the information directly into a data-collection device.

c. **BCR:** There are certain thick and thin lines printed at price tag of an item called UPC: Universal Product Code. This code contains some hidden information like item price, manufacturer name, type of item etc. BCR reads this code and shows output to the display screen. This device also helps to maintain the stock of an item.

d. **OMR: Optical Mark Recognition:** Optical mark recognition (also called optical mark reading and OMR) is the process of capturing human-marked data from document forms such as surveys and tests. They are used to read questionnaires, multiple choice examination paper in the form of lines or shaded areas.

   e. **MAGNETIC STRIPE CARD READERS:** A magnetic stripe card reader, often called a magstripe reader, reads the magnetic stripe on the back of credit cards, entertainment cards, bank cards, and other similar cards. The stripe contains information identifying you and the card issuer. Some information stored in the stripe includes your name, account number, the card's expiration date, and a country code.

5. **Digital Cameras**: A digital camera allows users to take pictures and store the photographed images digitally, instead of on traditional film. Most digital cameras have some amount of internal flash memory to store images. Many also can store additional images on mobile storage media, including a flash memory card, memory stick, and mini-CD/DVD.
6. **Video Input**: Video input is the process of capturing full-motion images and storing them on a computer's storage medium such as a hard disk or DVD. After saving the video on a storage medium, such as a hard disk or DVD, you can play it or edit it using video editing software on a computer.
   a. **PC VIDEO CAMERAS:** A PC video camera, or PC camera, is a type of digital video camera that enables a home or small business user to capture video and still images, send e-mail messages with video attachments, add live images to instant messages, broadcast live images over the Internet, and make video telephone calls. During a video telephone call, both parties see each other as they communicate over the Internet
   b. **WEB CAMS**: A Web cam is any video camera that displays its output on a Web page. A Web cam attracts Web site visitors by showing images that change regularly. Home or small business users might use Web cams to show a work in progress, weather and traffic information, employees at work.
   c. **VIDEO CONFERENCING**: A video conference is a meeting between two or more geographically separated people who use a network or the Internet to transmit audio and video data. To participate in a video conference, you need video conferencing software along with a microphone, speakers, and a video camera attached to a computer. As you speak, members of the meeting hear your voice on their speakers. As the costs of video conferencing hardware and software decrease, increasingly more business meetings, corporate training, and educational classes will be conducted as video conference.
7. **Terminals:** A terminal consists of a keyboard, a monitor, a video card, and memory. These components often are housed in a single unit. Users enter data and instructions into a terminal and then transmit some or all of the data over a network to a host computer. Special-purpose terminals perform specific tasks and contain features uniquely designed for use in a particular industry. Two special-purpose terminals are point-of-sale (POS) terminals and automated teller machines.
   a. **Point-of-Sale (POS) Terminals** — The location in a retail or grocery store where a consumer pays for goods or services is the point of sale (POS). Most retail stores use a POS terminal to record purchases, process credit or debit cards, and update inventory. Many POS terminals handle credit card or debit card payments and thus also include a magstripe reader.
   b. **Automated Teller Machines** — An automated teller machine (ATM) is a self-service banking machine that connects to a host computer through a network. Banks place ATMs in convenient locations, including grocery stores, convenience stores, retail outlets, shopping malls, and gas stations. Using an ATM, people withdraw cash, deposit money, transfer funds, or inquire about an account balance. Some ATMs have a touch screen; others have special buttons or keypads for entering input. To access a bank account, you insert a plastic bankcard in the ATM's magstripe reader. The ATM asks you to enter a password, called a personal identification number (PIN), which verifies that you are the holder of the bankcard. When your transaction is complete, the ATM prints a receipt for your records.
8. **Biometric Input:** Biometrics is the technology of authenticating a person's identity by verifying a personal characteristic. Biometric devices grant users access to programs, systems, or rooms by

analyzing some physiological behavioral characteristic. Examples include fingerprints, hand geometry, facial features, voice, signatures, and eye patterns. The most widely used biometric device today is a fingerprint scanner.

Q2. WHAT IS OUTPUT?

Ans: Output is data that has been processed into a useful form. That is, computers process data (input) into information (output). Users view or watch output on a screen, print it, or hear it through speakers, headphones, or earphones. While working with a computer, a user encounters four basic categories of output: text, graphics, audio, and video. A single form of output, such as a Web page, includes more than one of these categories.

Q3. WHAT IS AN OUTPUT DEVICE?

Ans: An output device is any hardware component that conveys information to one or more people. Commonly used output devices include display devices; printers; speakers, headphones, and earphones; fax machines and fax modems; multifunction peripherals; and data projectors.

Q4. WRITE THE LIST OF OUTPUT DEVICES.

Ans: Following is the list of output devices used with a computer

1. Display Devices
    a. Monitor
    b. LCD
2. Printers
    a. Impact Printers
        i. Dot Matrix Printer
    b. Nonimpact Printers
        i. Ink-Jet Printer
        ii. Laser Printer
    c. Thermal Printers
    d. Mobile Printers
3. Plotters
4. Speakers
5. Projectors
6. Interactive Whiteboard

Q5. WRITE NOTE ON DISPLAY DEVICES

Ans: DISPLAY DEVICES:

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

MONITOR:

A monitor, sometimes called a visual display unit (VDU), is an electronic output device form computer. It displays the result of user activities. The output produce by monitor is called softcopy output. There are different types and sizes of monitors, each can be distinguished on the basis of the following features;

Size: The size of the monitor is measured diagonally. Standard size is 15 to 19 inches.

Color: The monitor can be either monochrome (one color) or color monitor.

Resolution: Total number of pixels (or dots) on a screen is called its resolution.

Resolution = Pixels in a row x Pixels in a column

Refresh Rate: It is a speed with which the monitor redraws the screen per unit time.

Dot Pitch: The distance between the pixels on the monitor is called dot pitch. The monitors with less dot pitch have sharp images.

Types of monitors:

- CRT (Cathode Ray Tube),
- LCD (Liquid Crystal Display) and
- LED (Light Emitting Diode) are the three common types of monitors

- **CRT (Cathode Ray Tube): Cathode Ray Tube (CRT) Monitors:** The Cathode Ray Tube is a vacuum tube containing an electronic gun and a phosphorous coated screen. The electronic gun fires a beam of electrons which falls repeatedly on the phosphorous coated screen which glows it for a fraction of second. In color CRT monitors, there are three electron guns each with a unique color that is Red, Green and Blue (RGB). Other colors are produced by the combinations of these three colors.
- **Liquid Crystal Display (LCD) Monitors:** An LCD monitor, also called a flat panel 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. LCD monitors are available in a variety of sizes, with the more common being 15, 17, 18, 19, 20, 21, 22, and 23 inches — some are 30 or 40 inches. You measure a monitor the same way you measure a television, that is, diagonally from one corner to the other.
- **Light-Emitting Diodes:** An LED monitor is a flat screen LCD display that uses light-emitting diodes (LEDs) as pixels to create visuals. LED displays are visually quite bright and visible in sunlight, enabling them to be used outdoors.

Q6. WRITE DOWN NOTE ON PRINTER AND ITS TYPES

Ans: Printers: A printer is an output device that produces text and graphics on a physical medium such as paper or transparency film. Many different printers exist with varying speeds, capabilities, and printing methods.

TYPES OF PRINTERS:

1. **Impact Printers:** Impact printer works like a typewriter. It prints character or images by striking a print hammer or wheel against an inked ribbon. Impact printers are the following;

a) DOT-MATRIX PRINTER: Dot Matrix printer produces printed images when tiny pins on a print head strikes an inked ribbon. When the ribbon presses against the paper, it creates dots that form characters and graphics. The dot matrix printer head contains nine to 24 pins. This number of pins depends on the manufacture and printer model. A higher number of pins print more dots that produce higher quality. Cheaper dot matrix printer uses 100 to 150 DPI. Their speed is from 200 to 300 characters per minute. The expensive printer use 300 DPI and a speed of 3000 to 1000 character per minute.

b) DAISY-WHEEL PRINTERS: Daisy wheel is similar to type writer. They produce rather excellent letter-quality printout as compared the dot-matrix printer. They work just like the typewriter and use a hammer and a wheel to print something on paper. But they are very much noisy and hence are not so popular.

2. NON-IMPACT PRINTER: Non-impact printer produces character without striking devices on paper. They are much quieter than impact printer. The following are the non-impact printer.

a. LASER PRINTERS: The most expansive and quality bearer printers are the Laser printers, which produce high-quality printout and are used for desktop publishing and graphics. A Laser printer works on the principles of a Photocopier. Simply a metal drum called TONER is filled with special ink which, just sprinkle ink onto the paper and thus prints the character. They are very fast and use multiple

fonts for text and graphics. Besides them now there are color printers available in dot matrix as well as Laser printers and all others as well.

b. INK-JET: It prints character and graphics by spraying tiny drops of liquid ink on paper. These printers can produce text and graphics in both black-and-white and color. Inkjet printer is slower than laser printers. They can print 1 to 6 pages per minute. Its print quality is higher than dot matrix printer. Most inkjet printer has usually two print cartridges: one containing black ink and other containing color.

- **Thermal Printers:** A thermal printer generates images by pushing electrically heated pins against heat-sensitive paper. Basic thermal printers are inexpensive, but the print quality is low and the images tend to fade over time.
- **Mobile Printers:** A mobile printer is a small, lightweight, battery-powered printer that allows a mobile user to print from a notebook computer, Tablet PC, PDA, or smart phone while traveling

3. Plotters: Plotters are sophisticated printers used to produce high-quality drawings such as blueprints, maps, and circuit diagrams. These printers are used in specialized fields such as engineering and drafting and usually are very costly. A large-format printer creates photorealistic-quality color prints. Graphic artists use these high-cost, high-performance printers for signs, posters, and other professional quality displays.

4. Speakers: Most personal computers have a small internal speaker that usually emits only low-quality sound. Thus, many personal computer users add surround sound speakers to their computers to generate a higher-quality sound.

5. Projectors: A data projector is a device that takes the text and images displaying on a computer screen and projects them on a larger screen so an audience can see the image clearly. Some data projectors are large devices that attach to a ceiling or wall in an auditorium. Others, designed for the mobile user, are small portable devices that can be transported easily

6. Interactive Whiteboard: An interactive whiteboard, also known as a smart board, is a technological device used in education and business settings to enhance presentations, collaboration, and interactive learning. It typically consists of a large touch-sensitive display or whiteboard surface that can be written on or manipulated using a special stylus or one's fingers. Interactive whiteboards are connected to a computer or other devices, and they can display digital content, such as presentations, videos, and interactive software.

EXERCISE

OBJECTIVE TYPE QUESTIONS

1. State True OR False

a. Many desktop computer keyboards also have a numeric keypad on the right side of the keyboard. **(True/False)**

b. Input is any data & instructions entered into the hard disk of a computer **(True/False)**

c. A mechanical mouse is placed on a mouse pad. **(True/False)**

d. BCR is used in bank for processing of cheques. **(True/False)**

e. Impact printer works like a typewriter. **(True/False)**

2. Choose the correct answer

1. Two types of pen input are _____.

A. digital pen and touch screen B. stylus and digital pen

C. trackball and stylus D. pointing stick and digital pen

2.A _____ controls the movement and actions of players or objects in video games or computer games.

A. control pad B. Joystick

C. gamepad D. touchpad

3. The speed of an ink-jet printer is measured by the number of _____ it can print.

A. pages per minute (ppm) B. dots per inch (dpi)

C. characters per second (cps) D. lines per page (lpp)

4. A _____desktop monitor that uses a liquid crystal display to produce images

A. CRT monitor B. LCD

C. LED D. All of these

5. _____ is used to determine the price of an item.

A. OMR B. MICR

C. BCR D. None of these

3. Fill in the blanks with suitable words

Interactive-Whiteboard Smart Card Touchpad LCD Impact-Printer

1. _____ is a desktop monitor that uses a liquid crystal display to produce images.
2. _____ is a small, flat, rectangular pointing device that is sensitive to pressure and motion.
3. _____ is stores data on a thin microprocessor that is embedded in a credit-card-sized card
4. _____ printer produce sound during printing process.

5. _____is a technological device used in education and business settings to enhance presentations, collaboration, and interactive learning.

DESCRIPTVE TYPE QUESTIONS

I. Answer the following short questions.

i. What factors determine the quality of a CRT monitor?
ii. How does an ink-jet printer work?
iii. Write down the differences between impact and non-impact printers
iv. List the input and output devices.
v. What is ATM? How it works.

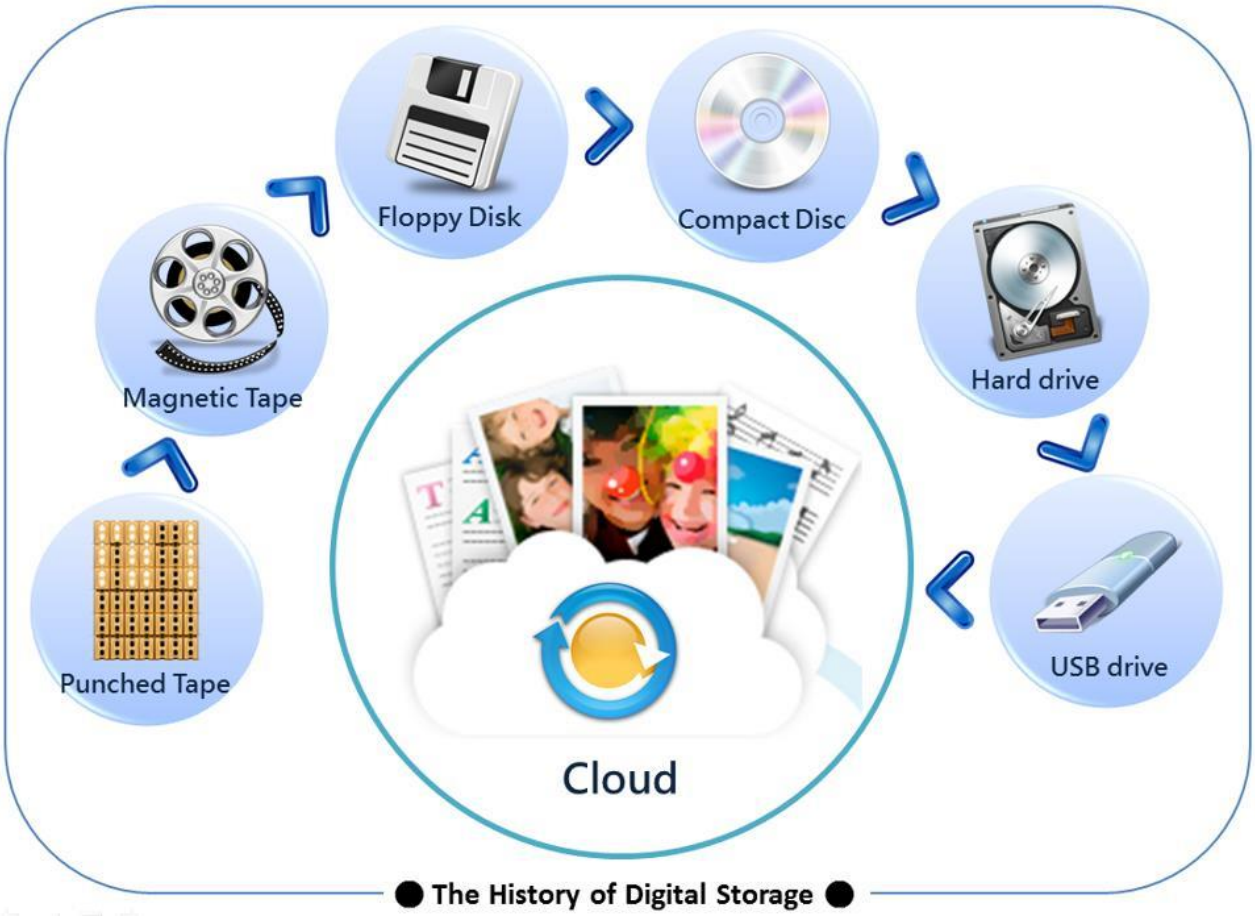
II. Answer the following long questions

i. Explain any Five input devices.
ii. Explain any Five output devices.
iii. Explain types of printers.
iv. Write short note on the following
    a. Speakers
    b. Plotters
    c. Interactive Whiteboards

Unit #4

DIGITAL STORAGE

ICT



UNIT #4: DIGITAL STORAGE

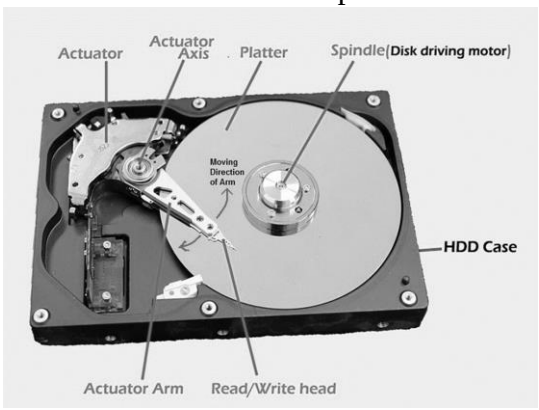
Q1. WHAT IS STORAGE MEDIA?

Ans: A storage medium, also called secondary storage, is the physical material on which a computer keeps data, instructions, and information.
Examples of storage media are hard disks, floppy disks, CDs and DVDs, tape, PC Cards and flash memory cards, USB flash drives, smart cards.

Q2. EXPLAIN HARD DISKS AND ITS CHARACTERISTICS?

Hard Disks A hard disk is a storage device that contains one or more inflexible, circular platters that store data, instructions, and information. People use hard disks to store all types of documents, spreadsheets, presentations, databases, e-mail messages, Web pages, digital photographs, music, videos, and software. The system unit on most desktop and notebook computers contains at least one hard disk. The entire device is enclosed in an airtight, sealed case to protect it from contamination. A hard disk that is mounted inside the system unit sometimes is called a fixed disk because it is not portable.

CHARACTERISTICS OF A HARD DISK



1. **Storage Capacity**: Hard disks come in a wide range of storage capacities, from a few gigabytes (GB) to several terabytes (TB).
2. **Data Retention**: Data stored on a hard disk remains intact even when the power is turned off.
3. **Physical Components**: A typical hard disk consists of one or more spinning disks (platters) coated with a magnetic material. Each platter has read/write heads that access and modify the data. The entire assembly is sealed inside a protective casing.
4. **Rotational Speed**: Hard disks spin at a constant speed, typically measured in revolutions per minute (RPM). Common speeds include 5,400 RPM and 7,200 RPM, with higher speeds providing faster data access.
5. **Access Time**: Access time refers to the time it takes for the read/write heads to position themselves over the correct track and sector on the platters. Lower access times result in faster data retrieval.
6. **Reliability and Durability**: HDDs are known for their durability and resistance to physical shocks and vibration, making them suitable for both desktop and mobile use.
7. **Longevity**: The lifespan of a hard disk drive can vary based on usage and environmental factors.
8. **Cost**: Hard disk drives are generally more cost-effective in terms of price per gigabyte compared to solid-state drives (SSDs), making them a popular choice for mass storage.
9. **Form Factors**: HDDs come in various physical sizes or form factors, including 3.5-inch and 2.5-inch drives for desktop and laptop applications, respectively.
10. **Power Consumption**: Hard disks consume varying amounts of power, with laptop and mobile HDDs designed to be more power-efficient to preserve battery life.

Q3. DIFFERENTIATE BETWEEN INTERNAL AND EXTERNAL HARD DISKS.

INTERNAL HARD DISK

- An internal hard disk is a type of hard drive that is installed inside a computer or other electronic device.
- It is connected directly to the motherboard of the device, typically via a SATA interface.
- Internal hard disks are the primary storage devices for most computers and laptops, holding the operating system, software applications, and user data.
- They come in various form factors, including 3.5-inch and 2.5-inch drives.
- These drives are usually not easily removable or portable, and they are meant to be a permanent part of the computer.

EXTERNAL HARD DISK

- An external hard disk, as the name suggests, is a standalone hard drive that is enclosed in an external case.
- It is connected to a computer or other devices via external ports such as USB.
- External hard disks are designed to be portable and easily connectable to various devices, allowing users to carry their data with them.
- They are often used for data backup, additional storage, or for transferring files between computers.
- External hard disks come in a variety of sizes and capacities, and they can be easily disconnected and moved from one device to another.

Q4. EXPLAIN RAID AND NAS.

Ans: RAID (Redundant Array of Independent Disks)

RAID is a technology that involves using multiple hard drives in combination to improve data reliability, performance, or both. The fundamental idea behind RAID is to create an array of disks in such a way that they work together to provide benefits that a single drive cannot offer. RAID can be implemented through both hardware and software configurations.

NAS (Network-Attached Storage)

NAS is a storage device or solution that is dedicated to serving and managing files over a network. It consists of a specialized hardware device or software application that connects to a network and provides storage and file sharing capabilities. NAS devices typically have their own operating system and can be accessed by multiple users or devices over a network, often using standard network protocols such, NFS (Network File System), or FTP (File Transfer Protocol).

Q5. EXPLAIN THE FLASH STORAGE SOLID STATE DRIVES (SSDS)

Ans: Flash storage, particularly Solid-State Drives (SSDs), is a type of non-volatile storage technology that has gained popularity in recent years due to its speed, durability, and reliability. Here are some key characteristics and features of flash storage SSDs:

1. **Non-Volatile Memory**: SSDs are non-volatile, which means they retain data even when the power is turned off. This is in contrast to volatile memory like RAM, which loses data when power is disconnected.
2. **No Moving Parts**: SSDs do not have any moving parts, which makes them more resistant to physical shocks and vibrations compared to traditional hard disk drives (HDDs). This lack of moving parts also results in quieter operation.
3. **Data Access Speed**: SSDs are much faster than HDDs in terms of data access speed.
4. **Durability**: Because SSDs lack mechanical parts like spinning platters and read/write heads, they are more durable and have a longer lifespan compared to HDDs.

5. **Low Power Consumption**: SSDs consume less power than HDDs. This makes them more energy-efficient and suitable for use in laptops and other portable devices, as they extend battery life.
6. **Compact Form Factors**: SSDs come in various form factors, including 2.5-inch, M.2, and U.2, among others. This variety of form factors allows them to be used in a wide range of devices, from laptops and desktops to servers and embedded systems.
7. **Capacity Range**: SSDs are available in various capacities, ranging from a few gigabytes (GB) to several terabytes (TB). High-capacity SSDs are suitable for both consumer and enterprise applications.
8. **Data Encryption**: Many SSDs offer hardware-based encryption for data security, providing an additional layer of protection for sensitive information.
9. **Price and Cost per GB**: While SSD prices have decreased over time, they are generally more expensive per gigabyte compared to traditional HDDs. However, their performance benefits often justify the higher cost, especially for tasks that require speed and responsiveness.
10. **TRIM Support**: SSDs support the TRIM command, which helps maintain performance and extend the lifespan of the drive by erasing data blocks that are no longer in use.

Q6. EXPLAIN FLASH MEMORY CARDS.

Ans: Flash memory cards are a type of non-volatile data storage device that use flash memory technology to store digital data. These compact, portable cards are widely used in a variety of devices such as digital cameras, smartphones, tablets, portable gaming consoles, and more. Flash memory cards are versatile, reliable, and essential tools for extending the storage capabilities of a wide range of portable electronic devices, ensuring that users can store and access their digital data with ease.

Q7. EXPLAIN FLASH USB DRIVE

Ans: A USB flash drive, also known as a thumb drive, pen drive, or USB stick, is a portable storage device that uses flash memory technology to store and transfer digital data. These small, compact devices are widely used for data storage, backup, and file transfer. USB flash drives are versatile, convenient, and widely used for a variety of data storage and transfer tasks. Their universal compatibility, small form factor, and ease of use make them an essential tool for individuals and professionals alike.

Q8. EXPLAIN PC CARDS AND EXPRESSCARD MODULES

Ans: A PC Card is a thin, credit-card-sized removable flash memory device that fits into a PC Card slot. An ExpressCard module is a removable device, smaller than a PC Card that fits in an ExpressCard slot. PC Cards and ExpressCard modules can be used to add memory, storage, communications, multimedia, and security capabilities to a computer. PC Cards and ExpressCard modules commonly are used in notebook computers.

Q9. EXPLAIN THE FOLLOWING OPTICAL STORAGE DEVICES;

i. CDs ii. DVDs iii. Blue-ray Disks

Feature	CDs	DVDs	Blue-Ray Disks (BDs)
Stands For	Compact Disk	Digital Versatile Disk	Blue-Ray Disks
Storage Capacity	CDs are optical discs with a standard storage capacity of up to 700 MB (megabytes) of data. This is equivalent to about 80 minutes of	DVDs offer a much larger storage capacity compared to CDs. A standard single-layer DVD can store up to 4.7 GB (gigabytes) of	Blu-ray discs offer significantly higher storage capacity than CDs and DVDs. A single-layer Blu-ray disc can store up to 25 GB of

	audio or various data files.	data, while dual-layer DVDs can store up to 8.5 GB.	data, while a dual-layer disc can store up to 50 GB.
Primary Use	Audio: CDs are well known for their use in storing audio tracks for music playback.	Video: DVDs are commonly used to store movies, TV shows, and video content. They support various video formats, including MPEG-2.	High-Definition Video: Blu-ray discs are known for their use in storing high-definition (HD) and ultra-high-definition (UHD) video content.
Physical Size	CDs have a diameter of 120 mm (4.7 inches) and are typically 1.2 mm thick.	DVDs have a diameter of 120 mm (4.7 inches) and are typically 1.2 mm thick, similar to CDs.	Blu-ray discs are the same physical size as CDs and DVDs, with a diameter of 120 mm and a thickness of 1.2 mm
Read Speed	The standard read speed for CDs is 150 KB/s.	It's typically faster than CD read speeds	Blu-ray disc drives have higher read speeds compared to CDs and DVDs.

Q10. EXPLAIN MAGNETIC TAPE STORAGE.

Ans: Magnetic tape storage is a method of data storage that uses magnetic tape as a medium for recording digital information. It has been a reliable and cost-effective means of archiving and backing up large volumes of data for many decades. Here are some key aspects of magnetic tape storage:

1. Magnetic Tape Technology:

- Magnetic tape is a long, narrow strip of plastic material coated with a magnetic medium. Data is stored on the tape by aligning magnetic particles in a specific pattern, which represents binary information (0s and 1s).

2. Sequential Access:

- Magnetic tape is a sequential access storage medium. This means that data is read or written sequentially, from the beginning of the tape to the end.

3. High Storage Capacity:

- Magnetic tape storage is known for its high storage capacity. Modern magnetic tapes can store multiple terabytes (TB) of data per cartridge.

4. Cost-Effective:

i. Magnetic tape is considered one of the most cost-effective methods for long-term data storage, especially for large-scale archiving and backup needs.

5. Reliability:

- Magnetic tape has a reputation for reliability and durability. It can last for decades when stored in appropriate conditions, making it suitable for archival purposes.

Q11. EXPLAIN WHAT IS CLOUD STORAGE?

Ans: Cloud storage is a technology and service that allows users to store, manage, and access their digital data, such as files, documents, photos, and more, on remote servers over the internet, rather than on a local storage device, like a hard drive or a physical server. The data is typically stored and managed by third-party cloud service providers. Here are the key characteristics and concepts related to cloud storage:

1. **Remote Servers**: Cloud storage relies on remote servers that are hosted in data centers. These data centers can be located in various geographic regions, and users can access their data from anywhere with an internet connection.
2. **Internet-Based Access**: Users access their data stored in the cloud via the internet. This allows for convenient, on-demand access from a variety of devices, including computers, smartphones, tablets, and more.
3. **Data Synchronization**: Many cloud storage services offer data synchronization features, ensuring that changes made to files on one device are reflected across all linked devices. This makes it easy to keep data up to date and consistent.
4. **Scalability**: Cloud storage solutions typically offer scalability, allowing users to adjust their storage capacity based on their needs. Users can start with a small amount of storage and easily expand as their requirements grow.
5. **Security**: Data security is a major concern in cloud storage. Cloud service providers employ various security measures, including encryption, authentication, access controls, and regular security audits to protect users' data.
6. **Use Cases**: Cloud storage is used for various purposes, including:
    - Data backup and disaster recovery: Storing copies of important data to protect against data loss.
    - Data sharing and collaboration: Sharing files and documents with colleagues or collaborators.
    - Mobile access: Accessing data on the go from mobile devices.
    - Data archiving: Storing historical or infrequently accessed data.
    - Application hosting: Running applications and services in the cloud.
7. **Cloud Storage Providers**: There are numerous cloud storage providers, including well-known companies like Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), Dropbox, iCloud, Google Drive, OneDrive, and more.
8. **Pricing Models**: Cloud storage providers typically offer various pricing models, including pay-as-you-go, tiered pricing, and subscription-based plans. The pricing model and cost depend on factors like storage capacity, data transfer, and additional features.

EXERCISE

OBJECTIVE TYPE QUESTIONS

1. State True or False.

1. Secondary storage is the physical material on which a computer keeps data, instructions, and information. **(True/False)**
2. Reading is the process of transferring data, instructions, and information from memory to a storage medium. **(True/False)**
3. A typical hard disk usually contains only one platter. **(True/False)**
4. A CD-ROM can be read from and written on any number of times. **(True/False)**
5. Cloud storage is a technology and service that allows users to store, manage, and access their digital data on Internet. **(True/False)**

2. Choose The Correct One.

1. _____ measures the amount of time it takes a storage device to locate an item on a storage medium.
   A. Capacity B Access time C A storage medium D. Reading
2. A group of two or more integrated hard disks is called a _____.
   A. Backup B. Portable Hard Disk C. RAID D. Platter
3. _____ storage requires sequential access.
   A. Hard disk B. DVD C. Floppy disk D. Tape
4. A CD contains _____ MB of data.
   A. 700 B. 800 C. 900 D. 950
5. A USB flash drive, also known as a _____
   A. Thumb drive B. Pen drive C. USB stick D. All of these

3. Fill in the blanks with suitable words

RAID **CD-ROM** **Blue-Ray Disks** **Burning** **Online-Storage**

1. The process of writing on an optical disc is called _____.
2. The optical disc that users can read but not write or erase is called _____.
3. Web service that provides storage to computer users for free or for a monthly fee is called _____.
4. _____ is a technology that involves using multiple hard drives in combination to improve data reliability, performance.
5. The optical disk that can store 25GB of data is called _____.

DESCRIPTIVE TYPE QUESTIONS

1. Answer the following short questions

i. Define what is storage media?

ii. Write some characteristics of a hard disk.

iii. Differentiate between internal and external hard disks.

iv. Differentiate PC Cards and Express PC Cards.

v. Explain Flash Memory Cards.

2. Answer the following long questions

i. Elaborate RAID & NAS.

ii. What is SSD's and write down its characteristics.

iii. Explain the following optical storage devices;

a. CDs b. DVDs c. Blue-ray Disks

iv. Write a detail note on magnetic tape storage.

v. Explain what is cloud storage?

Unit # 5

OPERATING SYSTEMS & UTILITY PROGRAMS

ICT

UNIT #5: OPERATING SYSTEMS AND UTILITY PROGRAMS

Q1. DEFINE WHAT IS AN OPERATING SYSTEM?
Ans: An operating system (OS) is a set of programs containing instructions that coordinate all the activities among computer hardware resources. Most operating systems perform similar functions that include starting a computer, providing a user interface, managing programs, managing memory, scheduling jobs, configuring devices, establishing an Internet connection, monitoring performance, and providing file management utilities. Some operating systems also allow users to control a network and administer security.
In most cases, the operating system is installed and resides on the computer's hard disk. On handheld computers and many mobile devices, however, the operating system may reside on a ROM chip.

Q2. Explain OS Functions
Ans: Following are the functions of an operating system;

i. Starting and Shutting Down a Computer,
ii. Providing a User Interface,
iii. Managing Programs,
iv. Managing Memory,
v. Coordinating Tasks,
vi. Configuring Devices,
vii. Establishing an Internet Connection,
viii. Monitoring Performance,
ix. Providing File Management and Other Utilities,
x. Controlling a Network,

i. STARTING AND SHUTTING DOWN A COMPUTER.
Cold Boot: When turning on a computer that has been powered off completely, you are performing a cold boot.
Warm Boot: A warm boot, by contrast, is the process of using the operating system to restart a computer. Some computers have a reset button that when pressed restarts the computer as if it had been powered off.
ii. PROVIDING A USER INTERFACE: A user interface controls how you enter data and instructions and how information is displayed on the screen. Two types of user interfaces are command-line and graphical.

i. **COMMAND-LINE INTERFACE:** In a command-line interface, a user types commands or presses special keys on the keyboard to enter data and instructions. Command-line interfaces often are difficult to use because they require exact spelling, grammar, and punctuation.
ii. **GRAPHICAL USER INTERFACE:** Most users today work with a graphical user interface. With a graphical user interface (GUI), you interact with menus and visual images such as buttons and other graphical objects to issue commands.

iii. MANAGING PROGRAMS: Some operating systems support a single user and only one running program at a time. Others support thousands of users running multiple programs.

i. **A single user/single tasking operating system:** allows only one user to run one program at a time. PDAs, smart phones, and other small computing devices often use a single user/single tasking operating system.
ii. **A multiuser operating system** enables two or more users to run programs simultaneously. Networks, servers, mainframes, and supercomputers allow hundreds to thousands of users to connect at the same time, and thus are multiuser.

iv. MANAGING MEMORY: The purpose of memory management is to optimize the use of random access memory (RAM). RAM consists of one or more chips on the motherboard that hold items such as data and instructions while the processor interprets and executes them. The operating system allocates, or assigns, data and instructions to an area of memory while they are being processed. Then, it carefully monitors the contents of memory. Finally, the operating system releases these items from being monitored in memory when the processor no longer requires them.

v. SCHEDULING JOBS: The operating system determines the order in which jobs are processed. A job is an operation the processor manages. Jobs include receiving data from an input device, processing instructions, sending information to an output device, and transferring items from storage to memory and from memory to storage.

vi. CONFIGURING DEVICES: A driver is a small program that tells the operating system how to communicate with a specific device. Each device on a computer, such as the mouse, keyboard, monitor, printer, and scanner, has its own specialized set of commands and thus requires its own specific driver. Today, many devices and operating systems support Plug and Play. Plug and Play means the operating system automatically configures new devices as you install them. With Plug and Play, a user can plug in a device, turn on the computer, and then use the device without having to configure the system manually.

vii. ESTABLISHING AN INTERNET CONNECTION: Operating systems typically provide a means to establish Internet connections. Windows includes a Connect to a network wizard that guides users through the process of setting up a connection between a computer and an Internet service provider.

viii. MONITORING PERFORMANCE: Operating systems typically contain a performance monitor. A performance monitor is a program that checks and reports information about various computer resources and devices.

ix. PROVIDING FILE MANAGEMENT and Other Utilities Operating systems often provide users with the capability of managing files, searching for files, viewing images, securing a computer from unauthorized access, uninstalling programs, scanning disks, defragmenting disks, diagnosing problems, backing up files and disks, and setting up screen savers.

x. CONTROLLING A NETWORK A network operating system, or network OS, is an operating system that organizes and coordinates how multiple users access and share resources on a network.

Q3 EXPLAIN TYPES OF AN OPERATING SYSTEM

The three basic categories of operating systems that exist today are

i. Stand-alone,
ii. Network, and
iii. Embedded.

i. STAND-ALONE OPERATING SYSTEMS:

A stand-alone operating system is a complete operating system that works on a desktop computer, notebook computer, or mobile computing device.

Examples of currently used stand-alone operating systems are Windows XP, Windows Vista, Mac OS X, UNIX, and Linux.

ii. **NETWORK OPERATING SYSTEMS** A network operating system is an operating system that is designed specifically to support a network. A network operating system typically resides on a server. The client computers on the network rely on the server(s) for resources. **Examples** of network operating systems include Windows Server 2003, UNIX, Linux, Solaris, and NetWare.

iii. **EMBEDDED OPERATING SYSTEMS** The operating system on most PDAs and small devices, called an embedded operating system, and resides on a ROM chip.

Examples: Android, Windows CE, Windows Mobile, Palm OS, BlackBerry embedded Linux, and Symbian OS.

Q4. EXPLAIN OPERATING SYSTEM UTILITY PROGRAMS

Ans: 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 operating systems include several built-in utility programs.
Following are the utility programs:

File Manager: A file manager is a utility that performs functions related to file management. File manager performs, displaying a list of files on a storage medium organizing files in folders; and copying, renaming, deleting, moving, and sorting files.
Search Utility: A search utility is a program that attempts to locate a file on your computer based on criteria you specify. Search utilities can look through documents, pictures, music, and other files.
Image Viewer: An image viewer is a utility that allows users to display, copy, and print the contents of a graphics file.
Personal Firewall: A personal firewall is a utility that detects and protects a personal computer from unauthorized intrusions. Personal firewalls constantly monitor all transmissions to and from a computer.
Uninstaller: An uninstaller is a utility that removes a program, as well as any associated entries in the system files. When you install a program, the operating system records the information it uses to run the software in the system files. The uninstaller deletes files and folders from the hard disk, as well as removes program entries from the system files.
Disk Scanner: A disk scanner is a utility that searches for and removes unnecessary files. Windows includes a disk scanner utility called Disk Cleanup.
Disk Defragmenter: A disk defragmenter is a utility that reorganizes the files and unused space on a computer's hard disk so the operating system accesses data more quickly and programs run faster.
Diagnostic Utility: A diagnostic utility compiles technical information about your computer's hardware and certain system software programs and then prepares a report outlining any identified problems. Information in the report assists technical support staff in remedying any problems.
Backup Utility: A backup utility allows users to copy, or back up, selected files or an entire hard disk to another storage medium such as CD, DVD, external hard disk, tape, or USB flash drive.
A restore program reverses the process and returns backed up files to their original form. Backup utilities include restore programs.
Screen Saver: A screen saver is a utility that causes a display device's screen to show a moving image or blank screen if no keyboard or mouse activity occurs for a specified time. When you press a key on the keyboard or move the mouse, the screen saver disappears and the screen returns to the previous state.
Antivirus Programs: A computer virus is a segment of program code from some outside source that implants itself in a computer. Once the virus is in a computer, it can spread throughout and may

damage your files and operating system. Computer viruses do not generate by chance. The programmer of a virus, known as a virus author, intentionally writes a virus program.

Worm: A worm copies itself repeatedly, for example, in memory or over a network, using up system resources and possibly shutting the system down. Currently, more than 180,000 known viruses exist.

Antivirus: An antivirus program protects a computer against viruses by identifying and removing any computer viruses found in memory, on storage media, or on incoming files.
Three more popular antivirus programs are McAfee, VirusScan, Norton AntiVirus, and Windows Live OneCare.

Spyware Removers: Spyware is a program placed on a computer without the user's knowledge that secretly collects information about the user, often related to Web browsing habits.
File Compression: A file compression utility shrinks the size of a file(s). A compressed file takes up less storage space than the original file. Compressing files frees up room on the storage media and improves system performance. Compressed files sometimes are called zipped files. To uncompressed, or unzip, a file, you restore it to its original form.
File Conversion A file conversion utility transforms the contents of a file or data from one format to another. When a business develops a new system, often the data in the current system is not in the correct format for the new system.
Media Player: A media player is a program that allows you to view images and animation, listen to audio, and watch video files on your computer. Popular media players are VLC Player, iTunes and RealPlayer.
CD/DVD Burning: CD/DVD burning software writes text, graphics, audio, and video files on a recordable or rewritable CD or DVD, including Blu-ray and HD DVD.

Q5. EXPLAIN PERSONAL COMPUTER MAINTENANCE
Ans: Operating systems typically include a diagnostic utility that diagnoses computer problems but does not repair them. A personal computer maintenance utility identifies and fixes operating system problems, detects and repairs disk problems, and includes the capability of improving a computer's performance. Additionally, some personal computer maintenance utilities continuously monitor a computer while you use it to identify and repair problems before they occur. Norton SystemWorks is a popular personal computer maintenance utility designed for Windows operating systems.

EXERCISE

OBJECTIVE TYPE QUESTIONS

1. State True or False

i. Operating System is a system software. **(True/False)**

ii. Operating system does not provide user interface. **(True/False)**

iii. Booting is the process of permanently removing a computer from operation. **(True/False)**

iv. In a command-line interface, you interact with menus and visual images such as buttons and other graphical objects to issue commands. **(True/False)**

v. A folder is a specific named location on a storage medium that contains related documents. **(True/False)**

2. Choose The Correct Answer

i. A _____ is a small program that tells the operating system how to communicate with a specific device.

A. Buffer B. Driver C. Performance Monitor D. Device

ii. A _____ is a program that attempts to locate a file on your computer based on criteria you specify.

A. File manager B. Search utility C. Startup folder D. Worm

iii. The operating system on most PDAs and small devices, called a(n) _____, resides on a ROM chip.

A. Network operating system B. Embedded operating system
C. Stand-alone operating system D. Stand-alone utility program

iv. Personal firewalls, backup utilities, and screen savers are examples of _____.

A. antivirus programs B. network operating systems
C. stand-alone operating systems D. stand-alone utility programs

v. A _____ is a program that allows you to view images and animation, listen to audio, and watch video files on your computer.

A. File Manager B. Media Player C. Service Pack D. Media Center

3. Fill In The Blanks With Suitable Words

Worm Adware Shrinks Media Player Disk Defragmenter

i. _____ program displays an online advertisement in a banner or pop-up window on Web pages, e-mail, or other Internet services.

ii. _____ copies itself repeatedly using up system resources and possibly shutting the system down.

iii. A file compression utility _____ the size of a file(s).

iv. A _____ is a utility that reorganizes the files and unused space on a computer's hard disk.

v. _____ is used to listen the music and watch videos.

DESCRIPTIVE TYPE QUESTIONS

1. Answer the following short questions

i. Define what is an operating system?

ii. How is a cold boot different from a warm boot?

iii. What is a user interface?

iv. What is the purpose of memory management?

v. What is adware?

2. Answer the following long questions

i. Explain the functions of an operating system

ii. Explain the three basic categories of an operating system.

iii. Explain the different utilities use in the operating system.

iv. Explain personal computer maintenance

Unit # 6

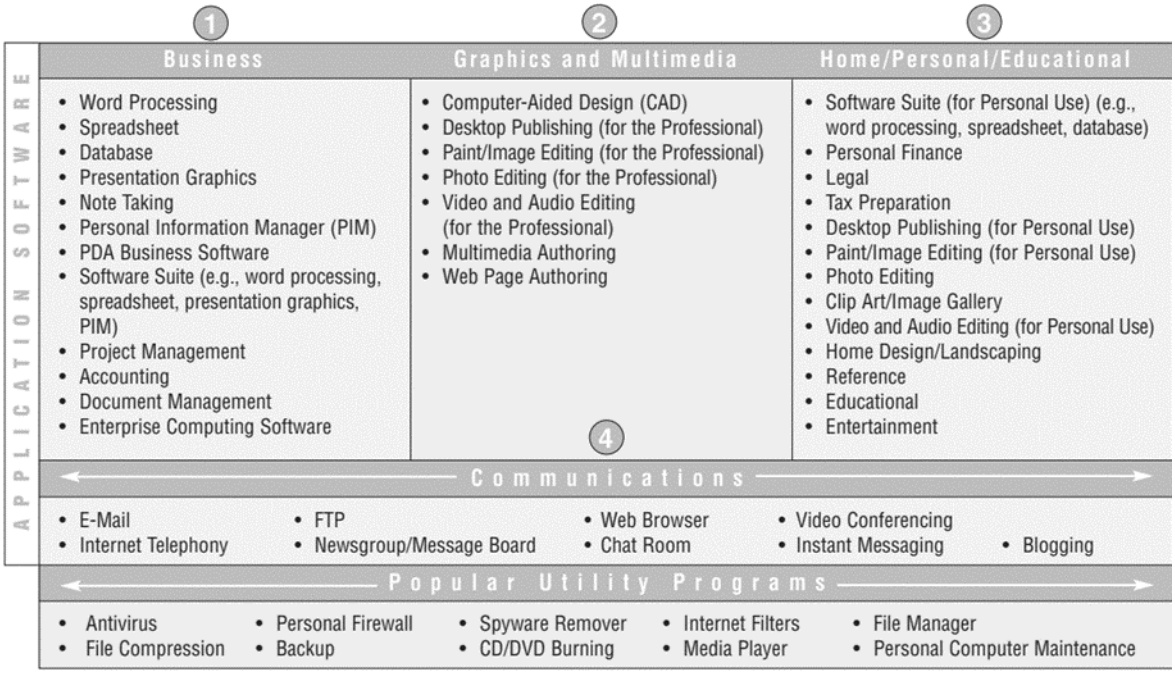
APPLICATION SOFTWARE

ICT

UNIT #6: APPLICATION SOFTWARE

Q1. Explain the need and role of Application Software?
Ans: Application software consists of programs designed to make users more productive and/or assist them with personal tasks. Application software has a variety of uses:
1. To make business activities more efficient
2. To assist with graphics and multimedia projects
3. To support home, personal, and educational tasks
4. To facilitate communications

CATEGORIES OF APPLICATION SOFTWARE



Q2. WHAT ARE THE DIFFERENT TYPES OF APPLICATION SOFTWARE?
Ans:
• **Packaged software:** Software that meets the needs of a wide variety of users, not just a single user or company. Word processing software is an example of packaged software. Packaged software is available in retail stores or on the Web.
• **Custom software:** performs functions specific to a business or industry. Sometimes a company cannot find packaged software that meets its unique requirements. In this case, the company may use programmers to develop tailor-made custom software.
• **Web-based software:** refers to programs hosted by a Web site. Users access and interact with Web-based software from any computer or device that is connected to the Internet. Examples of Web-based software include e-mail, word processing, and game programs.
• **Open source software:** is software provided for use, modification, and redistribution. This software has no restrictions from the copyright holder regarding modification of the software's internal instructions and redistribution of the software. Open source software usually can be downloaded from the Internet, sometimes at no cost.
• **Shareware:** is copyrighted software that is distributed at no cost for a trial period. To use a shareware program beyond that period, you send payment to the program developer.
• **Freeware:** is copyrighted software provided at no cost to a user by an individual or a company that retains all rights to the software.

• **Public-domain software:** has been donated for public use and has no copyright restrictions. Anyone can copy or distribute public-domain software to others at no cost.

Q3. EXPLAIN BUSINESS SOFTWARE?

Ans: BUSINESS SOFTWARE: Business software is application software that assists people in becoming more effective and efficient while performing their daily business activities. Business software includes programs such as

i. Word processing,
ii. Spreadsheet,
iii. Database,
iv. Presentation graphics,
v. Note taking,
vi. Personal information manager software,
vii. Software suites,
viii. Accounting software,
ix. Graphics and Multimedia software
x. Web Based software

i. Word Processing Software: Word processing software, sometimes called a word processor, allows users to create and manipulate documents containing mostly text and sometimes graphics. Millions of people use word processing software every day to develop documents such as letters, reports, mailing labels, newsletters, and Web pages.

ii. Spreadsheet Software: Spreadsheet software allows users to organize data in rows and columns and perform calculations on the data. These rows and columns collectively are called a worksheet. Most spreadsheet software has basic features to help users create, edit, and format worksheets.

iii. Database Software: A database is a collection of data organized in a manner that allows access, retrieval, and use of that data. Database software is application software that allows users to create, access, and manage a database. Using database software, you can add, change, and delete data in a database; sort and retrieve data from the database; and create forms and reports using the data in the database.

iv. Presentation Graphics: is application software that allows users to create visual aids for presentations to communicate ideas, messages, and other information to a group. The presentations can be viewed as slides, sometimes called a slide show, that are displayed on a large monitor or on a projection screen.

v. Note Taking Software: Note taking software is application software that enables users to enter typed text, handwritten comments, drawings, or sketches anywhere on a page and then save the page

vi. Personal Information Manager Software: A personal information manager (PIM) is application software that includes an appointment calendar, address book, notepad, and other features to help users organize personal information.

vii. Software Suite: A software suite is a collection of individual programs sold as a single package. Business software suites typically include, at a minimum, the following programs: word processing, spreadsheet, e-mail, and presentation graphics. Two of the more widely used software suites are Microsoft Office 2016 and Sun StarOffice.

viii. Accounting Software: Accounting software helps companies record and report their financial transactions. With accounting software, business users perform accounting activities related to the general ledger, accounts receivable, accounts payable, purchasing, invoicing, and payroll functions.

ix. Graphics and Multimedia Software: Power users such as engineers, architects, desktop publishers, and graphic artists often use sophisticated software that allows them to work with

graphics and multimedia. This software includes computer-aided design, desktop publishing, paint/image editing, photo editing, video and audio editing, multimedia authoring, and Web page authoring.

a. Computer-Aided Design: Computer-aided design (CAD) software is a sophisticated type of application software that assists a professional user in creating engineering, architectural, and scientific designs. For example, engineers create design plans for vehicles and security systems. Architects design building structures and floor plans. Scientists design drawings of molecular structures

b. Desktop Publishing Software: Desktop publishing (DTP) software enables professional designers to create sophisticated documents that contain text, graphics, and many colors. Professional DTP software is ideal for the production of high-quality color documents such as textbooks, corporate newsletters, marketing literature, product catalogs, and annual reports.

c. Paint/Image Editing Software: Graphic artists, multimedia professionals, technical illustrators, and desktop publishers use paint software and image editing software to create and modify graphical images such as those used in DTP documents and Web pages. Paint software, also called illustration software.

d. Video and Audio Editing Software: Video editing software allows professionals to modify a segment of a video, called a clip. For example, users can reduce the length of a video clip, reorder a series of clips, or add special effects such as words that move horizontally across the screen.

x. Web-Based Software: Web-based software refers to programs hosted by a Web site. Users often interact with Web-based software, sometimes called a Web application, directly at the host's Web site.

a. Web page authoring software: to create sophisticated Web pages that include graphical images, video, audio, animation, and other special effects. Web page authoring software generates HTML tags from your Web page design. Three popular Web page authoring programs are Dreamweaver, Expression Web, and Flash.

b. Multimedia authoring software: allows programmers to combine text, graphics, animation, audio, and video into an interactive presentation. Many developers use multimedia authoring software for computer-based training (CBT) and Web-based training (WBT). Popular software includes ToolBook, Authorware, and Director.

EXERCISE

Objective Type Questions

1. State True or False

i. Open source software has restrictions from the copyright holder regarding modification of the software's. **(True/False)**

ii. Public-domain software is available to the public for a fee. **(True/False)**

iii. The desktop is an on-screen work area that has a graphical user interface. **(True/False)**

iv. Business software includes programs such as word processing, spreadsheet, and presentation graphics. **(True/False)**

v. In a spreadsheet program, a formula performs calculations. **(True/False)**

2. Choose the correct answer

i. The title bar of a document window usually displays the document's.

A file name B file size
C file path D all of the above

ii. A feature, called _____, allows users of word processing software to type words continually without pressing the ENTER key at the end of each line.

A Wordwrap B AutoCorrect
C AutoFormat D Clipboard

iii. Combines application software such as word processing, spreadsheet, presentation graphics, and other programs in a single, easy-to-use package.

A. A software suite B. Shareware
C. Packaged software D. Custom software

iv. _____ is the delivery of education via some electronic method such as the Internet, networks, or CDs/DVDs.

A. A template B E-learning
C Online help D. Distance learning

v. _____ software enables professional designers to create sophisticated documents that contain text, graphics, and many colors.

A. Desktop Publishing B. Web Based Software
C. Video Editing D. Computer-Aided Design

3. Fill in the blanks with suitable words

Format Clipboard AutoCAD Packaged Spreadsheet

i. ____ change the appearance of a document.
ii. ____ temporary storage location that contains items cut from a document.
iii. ____ assists a professional user in creating engineering, architectural, and scientific designs.
iv. ____ software meets the needs of a wide variety of users.
v. ____ software allows users to organize data in rows and columns and perform calculations on the data.

Descriptive Type Questions

1. Answer the following short questions

i. Explain the need and role of application software.
ii. What is open source software?
iii. What is the difference between freeware and shareware software?
iv. What is word processing. Write some features of word processing software.
v. What is software suite?

2. Answer the following long questions

i. Explain different types of application software.
ii. Explain some business software.
iii. What is spreadsheet software?
iv. What is the use of desktop publishing software?
v. What is the use of Computer-Aided Designing software?

Unit # 7

THE INTERNET AND THE WORLD WIDE WEB

ICT

UNIT #7: THE INTERNET AND THE WORLD WIDE WEB

Q1. DEFINE WHAT IS NETWORK AND INTERNET?
Ans: Network: A network is a group of two or more computers or other electronic devices that are interconnected for the purpose of exchanging data and sharing resources
Internet: The Internet, also called the Net, is a worldwide collection of networks that links millions of businesses, government agencies, educational institutions, and individuals. Through the Internet, society has access to global information and instant communications. Today, more than one billion users around the world access a variety of services on the Internet.

Q2. HOW TO CONNECT TO THE INTERNET?
Ans: Connecting to the Internet employees and students often connect to the Internet through a business or school network.

1. Dial Up Access: when the modem in your computer uses a standard telephone line to connect to the internet.
2. DSL (Digital Subscriber Line): DSL is a technology that provides high-speed Internet connections using regular telephone lines.
3. A cable modem allows access to high-speed Internet services through the cable television network.
4. A Wi-Fi (wireless fidelity) network uses radio signals to provide Internet connections to wireless computers and devices

Access Providers an access provider is a business that provides individuals and companies access to the Internet free or for a fee. For example, some Wi-Fi networks provide free access while others charge a per use fee. Other access providers often charge a fixed amount for an Internet connection.

Q3. WHAT IS INTERNET ADDRESSES?
Ans: Internet Addresses: The Internet relies on an addressing system much like the postal service to send data to a computer at a specific destination. An IP address, short for Internet Protocol address, is a number that uniquely identifies each computer or device connected to the Internet.
The IP address usually consists of four groups of numbers, each separated by a period.
In general, the first portion of each IP address identifies the network and the last portion identifies the specific computer. These all-numeric IP addresses are difficult to remember and use. Thus, the Internet supports the use of a text name that represents one or more IP addresses. A domain name is the text version of an IP address.
IP address 216.239.39.99
Domain name www.google.com

Q4. WHAT IS WORLD WIDE WEB?
Ans: THE WORLD WIDE WEB: The World Wide Web (WWW), or Web, a widely used service on the Internet, consists of a worldwide collection of electronic documents. Each electronic document on the Web, called a Web page, can contain text, graphics, audio, and video. A Web site is a collection of related Web pages and associated items, such as documents and pictures, stored on a Web server. A Web server is a computer that delivers requested Web pages to your computer.

Q5. WHAT IS BROWSING?

Ans: Web Browser: A Web browser, or browser, is application software that allows users to access and view Web pages. To browse the Web, you need a computer that is connected to the Internet and that has a Web browser. The more widely used Web browsers for personal computers are Internet Explorer, Netscape, Firefox, Opera, and Safari

With an Internet connection established, you start a Web browser. The browser retrieves and displays a starting Web page, sometimes called the browser's home page.

Q6. WHAT IS WEB ADDRESS OR URL?

Ans: Web Addresses: A Web page has a unique address, which is called a URL (Uniform Resource Locator) or Web address. For example, the home page for the google Web site has a Web address of http://www.google.com. A Web browser retrieves a Web page using its Web address. If you know the Web address of a Web page, you can type it in the Address box at the top of the browser window. Many Web page addresses begin with http://. The http, which stands for Hypertext Transfer Protocol, is a set of rules that defines how pages transfer on the Internet.

Q7. WHAT IS WEB NAVIGATION?

Ans: Web Navigation: Most Web pages contain links. A link, short for hyperlink, is a built-in connection to another related Web page or part of a Web page. Links allow you to obtain information in a nonlinear way. That is, instead of accessing topics in a specified order, you move directly to a topic of interest. Branching from one related topic to another in a nonlinear fashion is what makes links so powerful. Some people use the phrase, surfing the Web, to refer to the activity of using links to explore the Web.

Q8. WHAT IS WEB SEARCHING?

Ans: Web Searching: The Web is a global resource of information. One primary use of the Web is to search for specific information, including text, graphics, audio, and video. The first step in successful searching is to identify the main idea or concept in the topic about which you are seeking information. Determine any synonyms, alternate spellings, or variant word forms for the topic. Then, use a search tool to locate the information. The two most commonly used search tools are subject directories and search engines.

- A subject directory classifies Web pages in an organized set of categories, such as sports or shopping, and related subcategories.
- A search engine is a program that finds Web sites, Web pages, images, videos, news, and other information.

Q9. WHAT ARE THE DIFFERENT TYPES OF WEB SITES?

Ans: There are twelve types of Web sites which are listed below;

i. Portal
ii. News
iii. Informational
iv. Business/marketing
v. Educational
vi. Entrainment
vii. Blog
viii. Wiki
ix. Online social network
x. Personal

i. **PORTAL:** A portal is a Web site that offers a variety of Internet services from a single, convenient location
ii. **NEWS:** A news Web site contains newsworthy material including stories and articles relating to current events, life, money, sports, and the weather.
iii. **INFORMATIONAL:** An informational Web site contains factual information many government agencies have informational Web sites providing information such as census data, tax codes, and the budget.
iv. **BUSINESS/MARKETING:** a business/marketing Web site contains content that promotes or sells products or services .Nearly every business has a business/marketing Web site. Many companies also allow you to purchase their products or services online.
v. **EDUCATIONAL**: an educational Web site offers exciting, challenging avenues for formal and informal teaching and learning. For a more structured learning experience, companies provide online training to employees; and colleges offer online classes and degrees. Instructors often use the Web to enhance classroom teaching by publishing course materials, grades, and other pertinent class information.
vi. **ENTERTAINMENT**: An entertainment Web site offers an interactive and engaging environment. Popular entertainment Web sites offer music, videos, sports, games, ongoing Web episodes, sweepstakes, chats, and more.
vii. **BLOG:** A blog, short for Weblog, is an informal Web site consisting of time-stamped articles, or posts, in a diary or journal format, usually listed in reverse chronological order A blog that contains video clips is called a video blog or vlog.
viii. **WIKI**: A wiki is a collaborative Web site that allows users to create, add to, modify, or delete the Web site content via their Web browser. Most wikis are open to modification by the general public. The difference between a wiki and a blog is that users cannot modify original posts made by the blogger. A popular wiki is Wikipedia, a free Web encyclopedia.
ix. **ONLINE SOCIAL NETWORKS**: An online social network, also called a social networking Web site, is a Web site that encourages members in its online community to share their interests, ideas, stories, photos, music, and videos with other registered users
x. **PERSONAL**: A private individual or family not usually associated with any organization may maintain a personal Web site. People publish personal Web pages for a variety of reasons. Some are job hunting. Others simply want to share life experiences with the world

Q10. WHAT IS WEB PUBLISHING AND HOW TO PUBLISH YOUR WEB SITE?
Ans: Web Publishing: Web publishing is the development and maintenance of Web pages. To develop a Web page, you do not have to be a computer programmer. For the small business or home user, Web publishing is fairly easy as long as you have the proper tools. The five major steps to Web publishing are as follows:
1. Plan a Web site
2. Analyze and design a Web site
3. Create a Web site
4. Deploy a Web site
5. Maintain a Web site

Q11. WHAT IS E-COMMERCE AND EXPLAIN ITS TYPES?

Ans: E-Commerce: E-commerce, short for electronic commerce, is a business transaction that occurs over an electronic network such as the Internet. Anyone with access to a computer, an Internet connection, and a means to pay for purchased goods or services can participate in e-commerce.

Three types of e-commerce are

i. Business-to-consumer (B2C) e-commerce consists of the sale of goods and services to the general public.

For example, Dell has a B2C Web site. Instead of visiting a computer store to purchase a computer, customers can order one directly from the Dell Web site

ii. Consumer-to-consumer (C2C) e-commerce occurs when one consumer sells directly to another, such as in an online auction. eBay is one of the more popular online auction Web sites, and

iii. Business-to-business (B2B) e-commerce. Many businesses provide goods and services to other businesses, such as online advertising, recruiting, credit, sales, market research, technical support, and training.

Q12. WHAT IS EMAIL?

Ans: 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. You use an e-mail program to create, send, receive, forward, store, print, and delete e-mail messages. Outlook and Outlook Express are two popular e-mail programs.

Q13. WHAT IS FTP?

Ans: FTP (File Transfer Protocol) is an Internet standard that permits the process of file uploading and downloading (transferring) with other computers on the Internet. Uploading is the opposite of downloading; that is, uploading is the process of transferring documents, graphics, and other objects from your computer to a server on the Internet. Many operating systems include FTP capabilities. An FTP site is a collection of files including text, graphics, audio clips, video clips, and program files that reside on an FTP server.

Q14. DEFINE WHAT IS INSTANT MESSAGING:

Ans: Instant Messaging: Instant messaging (IM) is a real-time Internet communications service that notifies you when one or more people are online and then allows you to exchange messages or files or join a private chat room with them .Some IM services support voice and video conversations. For IM to work, both parties must be online at the same time. Also, the receiver of a message must be willing to accept messages.

Q15. WHAT IS VOIP?

Ans: VoIP: Internet Telephony Internet telephony, also called Voice over IP (Internet Protocol), enables users to speak to other users over the Internet (instead of the public switched telephone network). To place an Internet telephone call, you need a high-speed Internet connection (e.g., via cable or DSL modem); Internet telephone service; a microphone or telephone, depending on the Internet telephone service; and Internet telephone software or a telephone adapter, depending on the Internet telephone service Calls to other parties with the same Internet telephone service often are free, while calls that connect to the telephone network typically cost more

Q16. DEFINE VIDEO CONFERENCING?
Ans: VIDEO CONFERENCING: A video conference is a meeting between two or more geographically separated people who use a network or the Internet to transmit audio and video data. To participate in a video conference, you need video conferencing software along with a microphone, speakers, and a video camera attached to a computer. As you speak, members of the meeting hear your voice on their speakers. Any image in front of the video camera, such as a person's face, appears in a window on each participant's screen

Q17. WHAT IS SOCIAL MEDIA?
Ans: Social Media: Social media is a collective term for websites and applications that focus on communication, community-based input, interaction, content-sharing and collaboration. People use social media to stay in touch and interact with friends, family and various communities.

Q18. WHAT IS COMPUTER SECURITY RISK?
Ans: Computer Security Risk: A computer security risk is any event or action that could cause a loss of or damage to computer hardware, software, data, information, or processing capability. Some breaches to computer security are accidental. Others are planned intrusions.
Internet and Network Attacks: Information transmitted over networks has a higher degree of security risk than information kept on a company's premises. In a business, network administrators usually take measures to protect a network from security risks. On the Internet, where no central administrator is present, the security risk is greater. Every unprotected computer is susceptible to the first type of computer security risk — a computer virus, worm, and/or Trojan horse.
• **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.
• **Worm:** A worm is a program that copies itself repeatedly, for example in memory or on a network, using up resources and possibly shutting down the computer or network.
• **Trojan Horse:** A Trojan horse (named after the Greek myth) is a program that hides within or looks like a legitimate program. A certain condition or action usually triggers the Trojan horse. Unlike a virus or worm, a Trojan horse does not replicate itself to other computers.

Q19. EXPLAIN WHAT ARE THE SAFEGUARDS AGAINST COMPUTER VIRUSES?
Ans: Users can take several precautions to protect their home and work computers from these malicious infections.
i. Do not start a computer with removable media, such as CDs, DVDs, and USB flash drives, in the drives or ports
ii. Never open an e-mail attachment unless you are expecting the attachment and it is from a trusted source. If the e-mail is from an unknown source, delete the e-mail message immediately
iii. An antivirus program 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, Trojan horses, and spyware.

Q20. WHAT IS INFORMATION PRIVACY?

Ans: Information Privacy: Information privacy refers to the right of individuals and companies to deny or restrict the collection and use of information about them. In the past, information privacy was easier to maintain because information was kept in separate locations. Each retail store had its own credit files. Each government agency maintained separate records. Doctors had their own patient files. Today, huge databases store this data online. Much of the data is personal and confidential and should be accessible only to authorized users. Many individuals and organizations, however, question whether this data really is private?

Q21. WHAT IS COMPUTER ETHICS?

Ans: Computer Ethics? are the moral guidelines that govern the use of computers and information systems. Five frequently discussed areas of computer ethics are

i. Unauthorized use of computers and networks,
ii. Software theft (piracy),
ii. Information accuracy,
iii. Intellectual property rights, and
v. Information privacy.

Q21. WHAT IS CYBERCRIME?

Ans: Cybercrime: Cybercrime is a type of crime involving a computer or a computer network. The computer may have been used in committing the crime, or it may be the target. Cybercrime may harm someone's security or finances.

Q22. WHAT ARE THE HEALTH CONCERNS OF COMPUTER USE?

Ans: Computers and Health Risks: The widespread use of computers has led to some important health concerns. A repetitive strain injury (RSI) is an injury or disorder of the muscles, nerves, tendons, ligaments, and joints. Computer-related RSIs include tendonitis and carpal tunnel syndrome

Carpal tunnel syndrome (CTS) is inflammation of the nerve that connects the forearm to the palm of the wrist. Repeated or forceful bending of the wrist can cause CTS or tendonitis of the wrist

Computer Vision Syndrome (CVS). You may have CVS if you have sore, tired, burning, itching, or dry eyes; blurred or double vision; distance blurred vision after prolonged staring at a display device; headache or sore neck; difficulty shifting focus between a display device and documents; difficulty focusing on the screen image; color fringes or after-images when you look away from the display device; and increased sensitivity to light.

EXERCISE

OBJECTIVE TYPE QUESTIONS

1. State True or False

i. No single person, company, institution, or government agency controls or owns the Internet. **(True/False)**

ii. . A domain name is the text version of an IP address. **(True/False)**

iii. A search engine is a program that finds Web sites, Web pages, images, videos, news, and other information. **(True/False)**

iv. Internet telephony is an online service in which users have written discussions. **(True/False)**

v. A chat room is a location on an Internet server that permits users to chat with each other. **(True/False)**

2. Choose The Correct Answer

i. A Wi-Fi network uses _____ to provide Internet connections to wireless computers and devices.

A. copper telephone lines B. the cable television network

C. radio signals D. a dish-shaped antenna

ii. Many Web addresses begin with http, which is the_____.

A. path B. domain name

C. protocol D. page name

iii. _____ is a strategy designed to prevent illegal distribution of music and other digital content.

A. A threaded discussion B. Internet telephony

C. Digital rights management D. Podcasting

iv. _____ is a strategy designed to prevent illegal distribution of music and other digital content.

A. A threaded discussion B. Internet telephony

C. Digital rights management D. Podcasting

v. In _____ e-commerce, customers purchase from other consumers.

A. consumer-to-business B. business-to-business

C. consumer-to-consumer D. business-to-consumer

3. Fill In The Blanks With Suitable Words

Computer ethics **Downloading** **Video blog** **Cybercrime** **Hotspot**

i. _____ a blog that contains video clips.

ii. _____ process of transferring documents, graphics, and other objects from your computer to an Internet server.

iii. provide public Wi-Fi Internet connections to users with mobile computers or device.

iv. _____ is a type of crime involving a computer or a computer network.

v. _____ are the moral guidelines that govern the use of computers and information systems.

Descriptive Type Questions

1. Answer the following short questions

i. Define what is network and internet?

ii. What is Internet Addresses?

iii. What is World Wide Web?

iv. What is Web Publishing?

v. What is cybercrime?

2. Answer the following long questions.

i. Write the procedure how to connect to the internet.

ii. What are the different types of Web Sites?

iii. What is E-Commerce and explain its types?

iv. What is Computer Security Risk?

v. What is VoIP**?**