**Principal Of Information Technology**

**Email**

**“**Email or Electronic mail”, messages transmitted over a computer network, most often the Internet.

**Virtual**

Virtual means that something is created, simulated, or carried on by means of a computer or a computer network but also that is seems almost real.

**Text Messaging**

“Texting or Text messaging” sending and receiving short written messages between mobile phones or other portable or fixed devices.

**Cyberspace**

Cyberspace encompasses not only the online world and the Internet in particular but also the whole wired and wireless.

**The Internet**

The Internet (the “Net” or “net”) is a worldwide computer network that connects hundreds of thousands of smaller networks.

**World Wide Web**

World Wide Web, often called simply the “Web” or the “web” – an interconnected system of Internet computers (called servers) that support specially formatted documents in multimedia form.

**Downloading and Uploading**

**Downloading** is defined as transferring data from a remote computer to one’s own computer or mobile device. **Uploading** is the reverse- transferring data from your own device to a remote computer.

**Super Computers**

Supercomputers are high-capacity machines with thousands of processors that can perform more than several quadrillion calculation per second. These are the most expensive and fastest computers available.

**Nanotechnology**

Nanotechnology, in which molecule-size nanostructures are used to create tiny machines for holding data or performing tasks.

**Mainframe Computers**

Mainframes are water or air-cooled computers that cost $5,000 - $5 million and vary in size from small, to medium, to large, depending on their use.

**Workstations**

Workstations are expensive, powerful personal computers usually used for complex scientific, mathematical, and engineering calculation and for computer-aided design and computer-aided manufacturing. Workstations are used for such task as designing airplane fuselages; developing prescription drugs and creating movie special effects.

**Local Area Network (LAN)**

A local area network (LAN) connects, usually by special cable and also wirelessly, a group of desktop PCs and other devices, such as printers, in an office or a building.

**Personal Digital Assistants (PDAs)**

Personal digital assistants (PDAs) are handheld computers that combine personal organization tools schedule planners, address books, to-do lists with the ability in some cases to send email and faxes.

**Micro controllers**

Micro-controllers, also called embedded computers, are the tiny, specialized microprocessors installed in “smart” appliances and auto-mobiles.

**Server**

A server, or network server, is a central computer that holds collections of data (databases) and programs for connecting or supplying services to PCs, workstations, and other devices, which are called clients. These clients are linked by a wired or wireless network. The entire network is called a client-server network.

**Data**

Data consists of the raw facts and figures that are processed into information.

**Information**

Information is data that has been summarized or otherwise transformed for use in decision making.

**Hardware**

Hardware consists of all the machinery and equipment in a computer system. The hardware includes, among other devices, the keyboard, the screen, the printer. Hardware is useless without software.

**Software**

Software, or programs, consists of all the electronic instructions that tell computer how to perform a task.

**Input Operation**

Input is whatever is put in (“input”) to a computer system.

**Processing Operation**

Processing is the manipulation a computer does to transform data into information.

**Primary Storage and Secondary Storage**

Primary storage, or memory, is the internal computer circuitry (chips) that temporarily holds data waiting to be processed. Secondary storage, simply called storage, refers to the devices and media that store data or information permanently.

**Output Operation**

Output is whatever is output from (“put out of”) the computer system – the results of processing, usually information.

**Communications Operation**

Sending and Receiving Data.

**The Brain of the Computer**

The brains of the computer are the processing and memory devices, which are installed in the case also called the system cabinet or system unit.

**Case & Power Supply**

Also known as the system unit, the case or system cabinet is the box that houses the processor chip (CPU), the memory chips, the motherboard (main circuit board), the power supply, and some secondary-storage devices.

**Processor Chip (CPU)**

A processor chip (CPU, for central processing unit) is a tiny piece of silicon that contains millions of miniature electronic circuits.

**Memory Chips**

Memory chips, also known as RAM (random access memory) chips, represent primary storage, or temporary, storage; they hold data before processing and information after processing, before it is sent along to an output or storage device.

**Motherboard**

Also called the system board, the motherboard is the main circuit board in the computer.

**Data Exchange Equation**

1 byte = 1 characters

1 kilobyte = 1,024 characters

1 megabyte = 1,048,576 characters

1 gigabyte = more than 1 billion characters

1 terabyte = more than 1 trillion characters

1 petabyte = about 1 quadrillion characters

1 exabyte = about 1 quintillion characters.

1 zettabyte = about 1 sextillion characters.

**Hard Disk Drive**

A hard-disk is a device that stores billions of characters of data on a non removable disk platter.

**A Peripheral Device**

A peripheral device is any component or piece of equipment that expands a computers input, storage, or input, output capabilities.

**Video Card**

A video card converts the processor’s output information into a video signal that can be sent through a cable to the monitor.

**Modem**

A standard modem is a device that sends and receives data over telephone lines, or wirelessly via a network, to and form computers.

**System Software**

System software enables the computer to perform essential operating tasks and makes it possible for application software to run.

**Application Software**

Application software enables you to perform specific tasks—solve problems, perform work, or entertain yourself.

**Connectivity**

Connectivity refers to the connection of computers to one another by a communications line in order to provide online information access and/or the sharing of peripheral devices.

**Interactivity**

Interactivity refers to two-way communication; the user can respond to information he or she receives and modify what a computer is doing.

**Multimedia**

Multimedia refers to technology that presents information in more than one medium – such as text, pictures, video, sound, and animation – in a single integrated communications.

**Cloud Computing**

Cloud Computing basically means that instead of storing your software and /or data on your own PC or your own company’s computers, you store it on servers on the internet.

**Chapter – 2**

**The Internet & The World Wide Web**

**DSL LINE**

DSL (digital subscriber line) uses regular phone lines, a DSL modem, and special technology to transmit data in megabits per second.

**A Cable Modem**

A cable modem connects a personal computer to a cable – TV system that offers an Internet modem connects a personal computer to a cable – TV system that offers an Internet connection

**ISP (Internet Service Provider)**

Internet service provider (ISP) – a local, regional, or national organization that provides access to the Internet for a fee.

**WISP (Wireless Internet Service Provider)**

A wireless Internet Service Provider (WISP) enables users with computers containing wireless modems-- mostly laptops, tablets, and smartphones-- to gain access to the Internet. A WISP offers public wireless network services and Internet access. WISPs typically install Wi-Fi wireless hotspots in airports, hotels, cafes, and other public business places.

**Internet Back Bone**

Internet backbone, high-speed, high-capacity transmission lines, usually fiber-optic lines, that use the newest communications technology to transmit data across the Internet.

**PROTOCOLS**

The protocol, or set of rules, that computers must follow to transmit data electronically. The protocol that enables all computers to use data transmitted on the Internet is called Transmission Control Protocol/Internet Protocol, or TCP/IP.

**PACKETS**

**Packets, fixed-length blocks of data for transmission.** The packets across the Internet to their final destination, and TCP is used to reassemble the packets in the correct order.

**IP Address**

An Internet Protocol (IP) address uniquely identifies each computer and device connected to the Internet.

**Dynamic IP address –** used for most websites

**Static IP address -** used for established organizational websites.

**URL**

The URL (Uniform Resource Locator) is a string of characters that points to a specific piece of information anywhere on the web.

**Hypertext Transfer Protocol**

Hypertext Transfer Protocol (HTTP), the communications rules that allow browsers rules that allow browsers to connect with web servers.

**Hypertext Links**

Hypertext Links also called hyperlinks, hotlinks, or just links – are HTML connections to other documents or web pages that contain related information; a word or phrase in one document becomes a connection to a documents in a different place.

**E-Commerce**

E-commerce, or electronic commerce, is the buying and selling of goods and services over the Internet.

**B2B Commerce**

Business to Business commerce, or B2B commerce, is the electronic sale of exchange of goods or services directly between companies, cutting out traditional intermediaries.

**B2C Commerce**

Business-to-consumer commerce, or B2C commerce, is the electronic sale or exchange of goods and services from the companies directly to the public, or end users.

**C2C Commerce**

Consumer to Consumer commerce, or C2C Commerce, is the electronic sale or exchange of goods and services between individuals.

**Spam Mail**

Spam refers to unsolicited email, or jun mail, in the form of advertising or chain letters.

**Spoofing**

Spoofing – using fake email sender names Spoofing is the forgery of and email sender name so that the message appears to have originated from someone or somewhere other than the actual source.

**Cookies**

Cookies are little text files – such as your username, password and preferences left on you hard disk by websites you visit. The website retrieve the data when you visit again.

**Key Logger**

Key Loggers, or keystroke loggers, can record each character you type and transmit that information to someone else on the Internet, making it possible for strangers to learn your passwords and other information.

**Chapter – 3**

**Tools For Productivity & Creativity**

**Application Software**

Application Software is software that has been developed to solve a particular problem for users – to perform useful work on specific tasks or to provide entertainment.

**System Software**

System Software runs at the most basic level of your computer and enables the application software to interact with the computer and helps the computer to manage its internal and external resources, as well as manage the hardware.

**Three Basic Components System Software**

**Operating System :** An operating System

**Chapter – 6**

**Communications Networks & Cyberthreats**

**Intranet**

An intranet is an organization’s internal private network that uses the infrastructure and standards-- technology, protocols, and hypertext links of the public Internet and web.

**Extranets**

Extranets are private intranets that connect not only internal personnel but also selected suppliers and other strategic parties via the public communications system.

**Ethernet**

Ethernet is a network standard for linking all devices in a local area network that describes how data can be sent between computers and other networked devices

usually in close proximity.

**Chapter – 7**

**Personal Technology**

**How do cellphones of smartphones differ?**

**Cellphones designed for calls and perhaps texting and lower-period option.**

- are compact, have a straightforward keypad.

- can access high-speed data networks and support Bluetooth headsets for hands-free communication.

- for users who care about privacy, cellphone are usually harder to track then GPS equipped smartphones.

**Smartphones designed with advanced operating systems and touch screens.**

**-** Smartphones are more expensive than cellphones.

- It have advanced operating systems (Apple’s IOS, Google’s Android, Windows Phone 8) and larger touch-screen displays and more advanced cameras.

- have GPS navigation technology, Wi-Fi capabilities and higher mobile wireless data speeds.

- allow to do text messaging, web browsing, email, creating documents, spreadsheets and streaming media.

**Chapter – 8**

**The ERA of Big Data**

**What are the key field?**

- A key field is a field to uniquely identify a record so that it can be easily retrieved and processed.

- often an identifying number, such as social security number or a student ID number.

- The primary characteristic of the key-field is that it is unique.

- A key field that identifies records in different tables is called a foreign key.

- Foreign Keys are used to cross – reference data.