Solved Assignment

Bachelor

ICT

Code 1431

Autumn 2018

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Course: Basics of ICT (1431)

Level: Bachelor (B.A)   Semester: Autumn, 2018
Total Marks: 100   Pass Marks: 40

ASSIGNMENT No. 1

(Unit 1–4)

Note: All questions are compulsory. Each question carries equal marks.

Q.1 a) ***Define the term computer. Also describe different types as well as applications of computer.***   **(10)**

Ans. Defination: " computers are electronic devices that accept data (input), process that data, produces output, and then store (storage) the results."

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Most of the beginners confused about types of Computer Applications and It is not easy to divide computer applications into any exact categories. At present there is no clear definition available to categorize computer applications. Even though here is a small list of different types of computer applications.

1. Embedded Systems
2. Windows applications (also called 'Desktop applications')
3. Web Applications
4. Web Services
5. Console applications

Embedded Systems: When we save a name, address and other information in to our Mobile Phone or Digital Diary, You know How it gets saved in it? Nothing but which is a small computer program 'Embedded' into a chip in the device inside the mobile phone or digital diary known as Embedded Systems.

Windows applications: Windows Applications is a form based standard Windows, Microsoft word; Paint is example to the Windows application, and also called 'Desktop applications'.

Web Applications: A web site is also called 'web Applications'. A web applications is a collection of web pages hosted on a special computer called 'web server'. Web server can be located anywhere and visitors can be located anywhere .It will work through Browsers (EG. Internet Explorer, Mozilla, Netscape).

Web Services: Web services are web applications that give services to other applications through the internet, example Google search engine, Yahoo Search engine etc. which allows other applications to delegate the task of searching over the internet.

Console Applications: Console applications runs inside the command prompt i.e. DOS window, It is a light weight program and which is used commonly for test applications.

b) *How "Information and Communication Technologies" may prove to be useful in an educational system? Explain it in detail with the help of suitable examples.* *(10)*

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Information and Communication Technologies (ICTs) are as an electronic means of capturing, processing, storing and disseminating information (Adeya, 2002). According to another definition, ICTs are embedded in networks and services that affect the local and global accumulation and flows of public and private knowledge (Adeya, 2002). ICTs are defined diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. These technologies include computers, internet, broadcasting technologies (radio and television), and telephony. ICT is the broad subject concerned with all aspects of managing and processing information.

At the end of the 1980s, Information Technology (IT) replaced the term computers signifying a shift of focus from computing technology to the capacity to store and retrieve information. This was followed by the introduction of the term 'ICT' (Information and Communication Technology) around 1992.

United Nations report (1999) defines ICTs covering provision of internet service, telecommunication equipments and services, information technology equipments and services, media and broadcasting, libraries and documentation centers, commercial information providers, network-based information services, and other related information and communication activities.

While discussing difference between information technology and information and communication technology, Galloway, & Norton (2011) stated:

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The term IT (Information technology) and ICT (information and communication technology) are often used interchangeably, although the later term is little known outside of education. Generally school think of IT as being the technology, the equipment and the infrastructure, and ICT as what we do with it, the subject and the way it is used to support learning. Sometimes the term is pluralized, 'information and communication technologies' as there are now number of different tools, devices, functions and possibilities that ICT covers- a range that continues to to grow and diversify.

According to Sharma (2005), educational technology is used as systematic tool for the achievement of educational objectives. Use of Information and Communication technology is increasing day by day to achieve the educational objectives and various tools are used for enhancement of quality education. There is huge impact of ICTs on educational objectives. Integration of Information and communication technology provides innovative, modern, systematic and well organized procedures for instructional design and education which offers countless promising opportunities for teacher educators to achieve the objectives of education (Sharma, 2005). ICTs in education have changed the teaching and learning process. Integration of ICTs in education has reformed in teaching and learning process and changed teaching paradigm.

Plomp, Brummelhuis, & Pelgrum (1997) explain "ICT provides a means to bring about the revolutionary changes called for by the evolutionary transitions in society. As a tool to support the learning process, ICT holds a promise of new solutions for the challenges facing education" (p.429).

Johannessen (2009) point out that:

The role of ICT in education must also be linked to educational needs. In many countries, the role of ICT is linked to issues of educational attainment and the importance of ICT for advancing robust learning strategies on the side of the students. A second area is ICT as a tool for the support of personalization strategies in teaching and learning.

Use of ICTs in educational process to achieve the goals of education has revolutionary impact in instruction and education using various instructional tools. Narasaiah (2007) point out that "Technology related skills among the staff concerned, n particularly teachers and trainers, need to be improved" (p.6). It is fact that integration of information and communication technology has transformed way of instruction which has great potential for learning.

Q.2 a) *What is the difference between memory and hard disk? Explain it in detail.* **(10)**

Ans. Memory and disk space are two of the most widely-confused terms in the computing world. To understand how your computer works, you must first know the difference between memory and disk space.

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The hard disk, sometimes called the "hard drive" (which is actually the mechanism that holds the hard disk), is a spindle of magnetic discs that can hold several gigabytes of data. Therefore, disk space refers to how much space you have available on your hard disk for storing files. When you save a document or install a new program, it gets stored on your hard disk. The more files you download, install, or save on your hard disk, the more full it becomes.

Memory, on the other hand, is not the same as disk space! Memory refers to the random access memory (RAM) inside your computer. RAM consists of small chips also known as memory modules. Your computer uses memory (RAM) to store actively running programs on the computer, including the operating system. For example, the operating system's interface and other processes get loaded into memory when the computer boots up. When you open a program like Microsoft Word, it gets loaded into the computer's memory as well. When you quit the program, the memory is freed up for use by other programs.

RAM can be accessed hundreds of times times faster than a hard drive, which is why active programs are loaded into RAM. Since only small amounts of data from hard disk does need to be loaded into the system memory at one time, computers typically have much more hard disk space than memory. For example, a 2012 computer may come with a 2 TB hard drive, and only 16 GB of RAM.

If your computer informs you that you don't have enough disk space to install a program, you will need delete files from your hard disk that you don't need or buy an additional hard drive. If your computer says there is not enough memory to run a certain program, you will need to upgrade your memory by buying more RAM. Knowing the difference between these two computer components can save you both time and money.

b) *Write a short note on "Data Scanning Devices".* *(10)*

Ans. Input devices that enable direct data entry into a computer system from source documents Eliminate the need to key in text data into the computer due to reduced human effort in data entry, they improve data accuracy and also increase the timeliness of the information processed Demand high quality of input documents. Some data scanning devices are also capable of recognizing marks or characters

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Example: Standard Scanners

Standard scanners come in two basic configurations. Flatbed scanners are available as standalone units, or come integrated with other print hardware such as a printer, photocopier and fax machine. On a flatbed scanner, you place the paper on a screen and then scan it. The other standard scanner type is a feed-through scanner. It works like a fax machine or a printer -- you feed a page through the unit. These units are typically smaller than flatbed scanners, and some are specifically designed to be portable.

Handheld Scanners

In addition to the portable scanners where you feed the paper through the device, there are also small, mobile, handheld scanners. Resembling a small bar, you manually pass the device over the image to be scanned. Some of these scanners have a certain amount of on-board memory so that you can scan images and then later download them to a computer, meaning you don't have to carry a computer with you just to scan an image.

Specialized Scanners

There are several types of speciality scanners. For instance, small business card scanners allow you to quickly scan in the cards you receive while networking. Other units are designed for scanning high-quality photos. Drum scanners are a completely different type of scanner that spins the image at high speed while it is scanned pixel by pixel, creating the highest possible quality scanned image. These scanners are often used in commercial printing or graphics production.

Apps

Developers have created a host of apps for smartphones that take advantage of the integrated technology in order to operate like a tiny, portable scanner. These apps use the camera in the smartphone to scan an image of the target document. The quality of the scanned image depends partly on the software, and partly on the quality of the camera integrated into the phone. These apps also include other features to enable easy sharing or conversion of the resultant files.

Q.3 *Discuss the purpose of Point & Draw devices. Also describe the concept of "Electronic Card Reader" in your own words.* **(20)**

Ans. *Point & Draw Device:-*

A point and draw device of a computer includes: a X axis and Y — axis driving gear system respectively mounted in a housing and generally orienting perpendicularly with each other, and a dri ving plate for driving the two gear systems slid ably held in the housing having an actuating portion pr otruding upwardly from the driving plate through a top window formed in an upper cover of the housing, whereby upon coordinative moving of the driving plate to move the X-axis or Y-axis driving gear s ystem, a movement pulse signal can be electronically sensed for encoding the pulse signals into the computer to be decoded and red for moving a cursor on a CRT screen of the computer corresponding to the movement of the driving plate in the housing for an effective, reliable and ergonomic mani pulation of the point and draw device.

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As of today, mouse is the most popular point and draw device. It has become a must have in put device on personal computer and work stations, which have a GUI-based user interface it is a small hand he ld device, which can comfortably fit in a user's palm. Since all movements of the mo use are reproduced by the graphics cursor on the screen, you can move the graphics cursor at a menu item or an icon by moving the mouse. With the proper software, a mouse can also be used to draw pictures on the screen and edit text. Another point and draw device is an electronic pen. In a pen based system, y ou hold the pen in your hand and directly point with it on the screen to select menu items or icons, or di rectly draw graphics on the screen with it, or can write a special pad. The most common input devices are by far and keyboard and the mouse, which is a point and draw device. Most of our interaction with a computer is performed using one of these or a combination of th e two. However there are many kinds of input devices that serve special needs. There are several kinds of point and draw devices. The most notable is the mouse. Others include the following.

1. Mouse Optical
2. Mouse Mini-mouse
3. Trackball
4. Joystick
5. Analog Stick
6. Pointing Stick
7. Stylus
8. Touch pad
9. Light pen
10. Touch Screen

Electronic Card Reader:-

A card reader is a data input device that reads data from a card-shaped storage medium. The first were punched card readers, which read the paper or cardboard punched cards that were used during the first several decades of the computer industry to store information and programs for computer systems. Modern card readers are electronic devices that can read plastic cards embedded with either a barcode, magnetic strip, computer chip or another storage medium.

A memory card reader is a device used for communication with a smart card or a memory card. A magnetic card reader is a device used to read magnetic stripe cards, such as credit cards. A business card reader is a device used to scan and electronically save printed business cards.

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Q.4 a) *Write down different advantages and disadvantages of "Information and Communication Technologies".*   **(10)**

Ans. Advantages and disadvantages of "Information and Communication Technology"

Information Communication Technology (ICT) "Information Communication Technology (ICT) is a term that describes types of technology that are used specifically for communications." It is like Information Technology, but ICT focuses more on technologies that deal with communication, like cell phones, the Internet and wireless networks, among other things.

Because of the convergence of the two technologies in the sense that we increasingly use digital data to communicate, a new term has been coined: information and communication technology (ITC). Today we use computers to call, each other and telephones to process data and send emails.

Usage of ICT

The field of Information Communication Technology has taken off in the last decade. Developed countries have a higher use of ICT, but developing countries have made significant increases in use over the last five years. At the end of 2008, the world had more than 4 billion mobile phone users, and close to one- fourth of the world's population had access to the Internet.

Utilitarian Objectives

One of the main aims of ICT is to help students to become competent and confident users who can use the basic knowledge and skills acquired to assist them in their daily lives. It is also supposed to prepare students for the world of tomorrow. It aims to help learners to have an open and flexible mind. This will help them to adjust to the inevitable future changes.

Social Aims of ICT

It aims to equip learners with the appropriate social skills required to cooperate with fellow ICT learners for a more productive learning experience. It enpowers students who are unable to use this technology outside the school premises by ensuring sufficient access to those students. Through this, it will also ensure equity among all learners, as they will all have the same opportunities to use the ICT facilities in school.

Another social objective of ICT is to facilitate good communication between the students, thus promoting better social understanding. ICT aims to assist students to appreciate the

beauty and diversity of culture. It also aims to help students become well-cultured citizens of the modern world.

It achieves this as it facilitates the discovery and appreciation of various cultural heritages of different countries around the world. Personal Objectives ICT aims to assist students to grow personally by facilitating different methods of learning. Distance-learning programs are now provided by most colleges and universities.

Many people are using these programs to get degrees that they would not have been able to receive without ICT. It also aims to allow the public to easily access the necessary information over the Internet. Regulations Americans enjoys relative freedom in the use of ICT, but other governments are struggling to regulate its use.

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Most recently, governments in the United Arab Emirates and Saudi Arabia decided to block features on Blackberry smart phones, which allow citizens to access the Internet without regulation. Starting Oct. 11, 2010, users will not be able to access email or the Internet through their BlackBerrys.

Information Technology

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Information technology refers to devices (hardware) and algorithms or programs (software) used to store, retrieve and process data. In simple terms, it refers to all computer applications and devices. Communication Technology In the modern sense of the term, communication technology includes electronic systems used for communication between individuals or groups not physically present at the same location.

It is about ways people can talk or write to each other and exchange messages, pictures or sounds. Information and Communication Technology (ICT) has a major impact on business operations. Companies are able to utilize ICT to manage business operations from accounting to advertisement. With the rapid development of ICT, it is now possible to conduct more business transactions at a minimal cost compared to the previous era where ICT development was minimal.

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Business operators and the ICT department are now able to become innovative and discover new ways to make Information and Communication technology work for them. Information and communications technology refers to a vast network of computer terminals, fiber optic cables and server equipment that collect and present data. Stock market investors are familiar with the stock ticker, which streams stock price quotes between exchange trading floors and numerous data points across the globe.

Media outlets, such as CNN and Bloomberg, present and analyze statistical information daily. Features Communications technology lowers expenses and improves liquidity for the overall market. Liquidity is synonymous with one's ability to raise cash on demand. For example, stock traders place sell orders with information technology to quickly receive cash for their investments.

Online trading enables smaller investors to bypass expensive financial advisers and coordinate their own trading strategies. Meanwhile, consumers search online for low-priced goods and read reviews to evaluate the quality of big-ticket items. Warning Criminals may exploit information technology to steal your identity and execute unauthorized money transfers and purchases.

Because of this it's important to install antivirus software on your computers to protect personal information.

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b) Write down the importance of ICT in daily life use. (10)

Ans. Information and Communications Technology (ICT) has an important role in the world since we are now in the information age era. With ICT, the company can make the business easier to happen with the client, supplier and the distributor. It is also very important in our daily lives. The lack of appropriate information at the right time will result in low productivity, low quality research works, and waste of time to pursue information and even to do research which actually others had done or in other countries. Nowadays ICT cannot be separated with our daily needs.

ICT has a great impact in our daily lives. For example, we can read our local newspaper using the online newspaper. Another example is we still can get connected with our family, relatives, or colleagues even if we are abroad by using the electronic mail, yahoo messenger, call conference, or video conference.

Digital computer and networking has changed our economy concept to the economy with no boundary in time and space because of ICT. It brings a lot of advantages for economic development enabling millions of transactions to happen in an easy and fast way.

ICT is one of the economic development pillars to gain national competitive advantage. It can improve the quality of human life because it can be used as a learning and education media, the mass communication media in promoting and campaigning practical and important issues, such as the health and social area. It provides wider knowledge and can help in gaining and accessing information.

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ICT has become an integral part of everyday life for many people. It increases its importance in people's lives and it is expected that this trend will continue, to the extent that ICT literacy will become a functional requirement for people's work, social, and personal lives.

The use of ICT in education add value in teaching and learning, by enhancing the effectiveness of learning, or by adding a dimension to learning that was not previously available. ICT may also be a significant motivational factor in students' learning, and can support students' engagement with collaborative learning.

Information and Communications Technology (ICT) is basically our society's efforts to teach its current and emerging citizens valuable knowledge and skills around computing and communications devices, software that operates them, applications that run on them and systems that are built with them.

As a matter of fact, we are living in a constantly evolving digital world. ICT has an impact on nearly every aspect of our lives – from working to socializing, learning to playing. The digital age has transformed the way young people communicate, network, seek help, access information and learn. We must recognize that young people are now an online population and access is through a variety of means such as computers, TV and mobile phones.

It is in this premise that educational technology and e-learning is taught in or out of the classroom since educational technology is used by learners and educators in homes, schools, businesses, and other settings.

Q.5   Write short notes on the following topics: (20)

➢   ***Types of monitors***
Hardware_Sep02_BMost people use computer monitors daily at work and at home. And while these come in a variety of shapes, designs, and colors, they can also be broadly categorized into three types. If you are not sure what these are and would like an introduction to the different types of computer monitors then here we explain the three main types, as well as the pros and cons of each.

CRT (cathode ray tube) monitors

These monitors employ CRT technology, which was used most commonly in the manufacturing of television screens. With these monitors, a stream of intense high energy electrons is used to form images on a fluorescent screen. A cathode ray tube is basically a vacuum tube containing an electron gun at one end and a fluorescent screen at another end.

While CRT monitors can still be found in some organizations, many offices have stopped using them largely because they are heavy, bulky, and costly to replace should they break. While they are still in use, it would be a good idea to phase these monitors out for cheaper, lighter, and more reliable monitors.

LCD (liquid crystal display) monitors

The LCD monitor incorporates one of the most advanced technologies available today. Typically, it consists of a layer of color or monochrome pixels arranged schematically between a couple of transparent electrodes and two polarizing filters. Optical effect is made possible by polarizing the light in varied amounts and making it pass through the liquid crystal layer. The two types of LCD technology available are the active matrix of TFT and a passive matrix technology. TFT generates better picture quality and is more secure and reliable. Passive matrix, on the other hand, has a slow response time and is slowly becoming outdated.

The advantages of LCD monitors include their compact size which makes them lightweight. They also don't consume much electricity as CRT monitors, and can be run off of batteries which makes them ideal for laptops.

Images transmitted by these monitors don't get geometrically distorted and have little flicker. However, this type of monitor does have disadvantages, such as its relatively high price, an image quality which is not constant when viewed from different angles, and a monitor resolution that is not always constant, meaning any alterations can result in reduced performance.

LED (light-emitting diodes) monitors

LED monitors are the latest types of monitors on the market today. These are flat panel, or slightly curved displays which make use of light-emitting diodes for back-lighting, instead of cold cathode fluorescent (CCFL) back-lighting used in LCDs. LED monitors are said to use much lesser power than CRT and LCD and are considered far more environmentally friendly.

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The advantages of LED monitors are that they produce images with higher contrast, have less negative environmental impact when disposed, are more durable than CRT or LCD monitors, and features a very thin design. They also don't produce much heat while running. The only downside is that they can be more expensive, especially for the high-end monitors like the new curved displays that are being released.

Being aware of the different types of computer monitors available should help you choose one that's most suited to your needs. Looking to learn more about hardware in today's world? Contact us and see how we can help.

> ### Social Networking Websites
> A social networking site is an online platform that allows users to create a public profile and interact with other users on the website. Social networking sites usually have a new user input a list of people with whom they share a connection and then allow the people on the list to confirm or deny the connection. After connections are established, the new user can search the networks of connections to make more connections.

ASSIGNMENT No. 2

(Unit 5–8)

Total Marks: 100   **Pass Marks: 40**

Note: All questions are compulsory. Each question carries equal marks.

Q.1 a) ***What is meant by computer software? Explain it in detail with the help of proper examples.*** *(10)*

Ans. Software are the set of programs/packages which we can not touch and feel as like hardware(It is device which we can touch and feel).Software provide better communication between computer/PC and user.

Types of Software:-

1) System Software:-System software are those software which we can used to control the system and also used for run applications.

Example:-DOS,Unix etc.

2) Application Software:-Application software are those software which are designed to perform a specific task.

Example tally,payroll etc.

3) Utility Software:-Utility software are those software which are used by everyone.

Example:-MS Office.

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4) Presentation Software:-Presentation Software are those software which are use to create/make computer presentations.

Example PowerPoint.

5) Language Software:-Language software are those software which are used to developed languages code.

Example:-c,c++,HTML5 etc.

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b) ***Differentiate between system software and application software.*** *(10)*

Ans. System software is general purpose software which is used to operate computer hardware. It provides platform to run application softwares.

Application software is specific purpose software which is used by user for performing specific task.

Below I have shared some main differences between them.
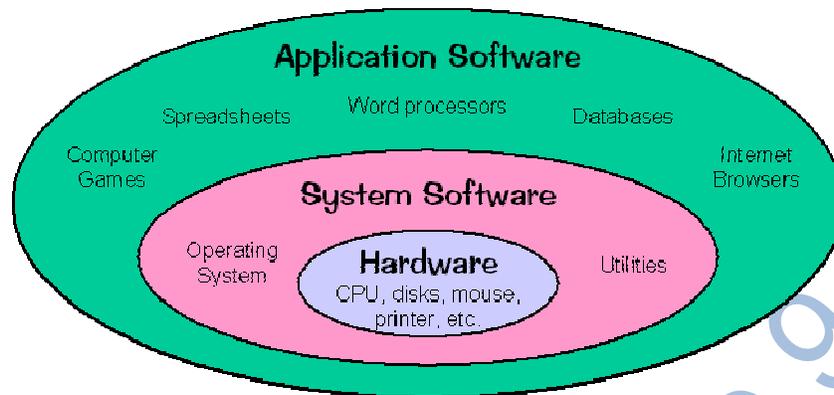
#	*System Software*	*Application Software*
1	System software is used for operating computer hardware.	Application software is used by user to perform specific task.
2	System softwares are installed on the computer when operating system is installed.	Application softwares are installed according to user's requirements.
3	In general, the user does not interact with system software because it works in the background.	In general, the user interacts with application sofwares.
4	System software can run independently. It provides platform for running application softwares.	Application software can't run independently. They can't run without the presence of system software.
5	Some examples of system softwares are compiler, assembler, debugger, driver, etc.	Some examples of application softwares are word processor, web browser, media player, etc.

Q.2 *What is meant by operating system? Define functions of an operating system in detail with the help of suitable examples.* *(20)*

Ans. An operating system (OS) is the program that, after being initially loaded into the computer by a boot program, manages all the other programs in a computer. The other programs are called applications or application programs. The application programs make use of the operating system by making requests for services through a defined application program interface (API). In addition, users can interact directly with the operating system through a user interface such as a command line or a graphical user interface (GUI).

An operating system performs these services for applications:

In a multitasking operating system where multiple programs can be running at the same time, the operating system determines which applications should run in what order and how much time should be allowed for each application before giving another application a turn.

It manages the sharing of internal memory among multiple applications.

It handles input and output to and from attached hardware devices, such as hard disks, printers, and dial-up ports.

It sends messages to each application or interactive user (or to a system operator) about the status of operation and any errors that may have occurred.

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It can offload the management of what are called batch jobs (for example, printing) so that the initiating application is freed from this work.

On computers that can provide parallel processing, an operating system can manage how to divide the program so that it runs on more than one processor at a time.

All major computer platforms (hardware and software) require and sometimes include an operating system, and operating systems must be developed with different features to meet the specific needs of various form factors.

Common desktop operating systems:

Windows is Microsoft's flagship operating system, the de facto standard for home and business computers. Introduced in 1985, the GUI-based OS has been released in many versions since then. The user-friendly Windows 95 was largely responsible for the rapid development of personal computing.

Mac OS is the operating system for Apple's Macintosh line of personal computers and workstations.

Linux is a Unix-like operating system that was designed to provide personal computer users a free or very low-cost alternative. Linux has a reputation as a very efficient and fast-performing system.

Windows operating systems have long dominated the market and continue to do so. As of August 2016, Windows systems had a market share of over 85 percent. In contrast, Mac OS was at a little over 6 percent and Linux was just over 2 percent. Nevertheless, Windows is losing market share from a long-held 90 percent and higher.

A mobile OS allows smartphones, tablet PCs and other mobile devices to run applications and programs. Mobile operating systems include Apple iOS, Google Android, BlackBerry OS and Windows 10 Mobile.

An embedded operating system is specialized for use in the computers built into larger systems, such as cars, traffic lights, digital televisions, ATMs, airplane controls, point of sale (POS) terminals, digital cameras, GPS navigation systems, elevators, digital media receivers and smart meters.

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Q.3 *a)* *Compare features of Windows Operating System on your computer with other Operating System (use Internet).* *(10)*

	Linux	*Windows*
Cost	Linux can be freely distributed, downloaded freely, distributed through magazines, Books etc. There are priced versions for Linux also, but they are normally cheaper than Windows.	$119 - $199.99, $69 for students, $99 to upgrade to pro
Development and Distribution	Linux is developed by Open Source development i.e. through sharing and collaboration of code and features through forums etc and it is distributed by various vendors.	Developed and distributed by Microsoft.
Manufacturer	Linux kernel is developed by the community. Linus Torvalds oversees things.	Microsoft
User	Everyone. From home users to developers and computer enthusiasts alike.	Everyone
Usage	Linux can be installed on a wide variety of computer hardware, ranging from mobile phones, tablet computers and video game consoles, to mainframes and supercomputers.	On PC's desktops, laptops, servers and some phones.
Introduction (from Wikipedia)	Linux is a Unix-like and POSIX-compliant computer operating system assembled under the model of free and open source software development and distribution. The defining component of Linux is the Linux kernel, an operating system kernel first released	Microsoft Windows is a series of graphical interface operating systems developed, marketed, and sold by Microsoft. Microsoft introduced an operating environment named Windows on November 20, 1985 as a graphical operating system shell for MS-DOS.
File system support	Ext2, Ext3, Ext4, Jfs, ReiserFS, Xfs, Btrfs, FAT, FAT32, NTFS	FAT, FAT32, NTFS, exFAT
Text mode interface	BASH (Bourne Again SHell) is the Linux default shell. It can	Windows uses a command shell and each version of Windows has

	support multiple command interpreters.	a single command interpreter with dos-like commands, recently there is the addition of the optional PowerShell that uses more Unix-like commands.
Company / developer	Linus Torvalds and the Linux community.	Microsoft
Update method	Many	Windows Update
Preceded by	Basic Terminal (CLI)	MS-DOS
License	GNU General Public License	Proprietary
Available language(s)	Multilingual	Multilingual
Default user interface	Gnome, KDE or many other desktops	Graphical (Windows Aero)
Source model	Free Software	Closed / Shared source
Supported platforms	All	PowerPC: versions 1.0 - NT 4.0; DEC Alpha: versions 1.0 - NT 4.0; MIPS R4000: versions 1.0 - NT 4.0; IA-32: versions 1.0 - 8; IA-64: version XP; x86-64: versions XP - 8; ARM: version RT;
OS family	GNU	DOS
Programmed in	C,	Assembly, C, C++
Marketing target	Server, Personal,	Personal, business
Compatibility	New version of linux support many kinds of hardware	Can coexist on local networks with Windows, BSD, Macs, and other Unix-like systems. Sometimes file compatibility issues may arise.

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b) *Briefly explain the terms: Assembler, Compiler, Linker and Interpreter. (10)*

Ans. *Assembler:* A computer will not understand any program written in a language, other than its machine language. The programs written in other languages must be translated into the machine language. Such translation is performed with the help of software. A program which translates an assembly language program into a machine language program is called an assembler. If an assembler which runs on a computer and produces the machine codes for the same computer then it is called self assembler or resident assembler. If an assembler that runs on a computer and produces the machine codes for other computer then it is called Cross Assembler.

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Assemblers are further divided into two types: One Pass Assembler and Two Pass Assembler. One pass assembler is the assembler which assigns the memory addresses to the variables and translates the source code into machine code in the first pass simultaneously. A Two Pass Assembler is the assembler which reads the source code twice. In the first pass, it reads all the variables and assigns them memory addresses. In the second pass, it reads the source code and translates the code into object code.

Compiler: It is a program which translates a high level language program into a machine language program. A compiler is more intelligent than an assembler. It checks all kinds of limits, ranges, errors etc. But its program run time is more and occupies a larger part of the memory. It has slow speed. Because a compiler goes through the entire program and then translates the entire program into machine codes. If a compiler runs on a computer and produces the machine codes for the same computer then it is known as a self compiler or resident compiler. On the other hand, if a compiler runs on a computer and produces the machine codes for other computer then it is known as a cross compiler.

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Interpreter: An interpreter is a program which translates statements of a program into machine code. It translates only one statement of the program at a time. It reads only one statement of program, translates it and executes it. Then it reads the next statement of the program again translates it and executes it. In this way it proceeds further till all the statements are translated and executed. On the other hand, a compiler goes through the entire program and then translates the entire program into machine codes. A compiler is 5 to 25 times faster than an interpreter.

By the compiler, the machine codes are saved permanently for future reference. On the other hand, the machine codes produced by interpreter are not saved. An interpreter is a small program as compared to compiler. It occupies less memory space, so it can be used in a smaller system which has limited memory space.

Linker: In high level languages, some built in header files or libraries are stored. These libraries are predefined and these contain basic functions which are essential for executing the program. These functions are linked to the libraries by a program called Linker. If linker does not find a library of a function then it informs to compiler and then compiler generates an error. The compiler automatically invokes the linker as the last step in compiling a program.

Not built in libraries, it also links the user defined functions to the user defined libraries. Usually a longer program is divided into smaller subprograms called modules. And these modules must be combined to execute the program. The process of combining the modules is done by the linker.

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Loader: Loader is a program that loads machine codes of a program into the system memory. In Computing, a loader is the part of an Operating System that is responsible for loading programs. It is one of the essential stages in the process of starting a program. Because it places programs into memory and prepares them for execution. Loading a program involves reading the contents of executable file into memory. Once loading is complete, the operating system starts the program by passing control to the loaded program code. All operating systems that support program loading have loaders. In many operating systems the loader is permanently resident in memory.

Q.4 a) *Explain basic concept of multimedia with the help of proper examples. (10)*

Ans. Through the proliferation of technology In modern-day homes, people communicate in a variety of ways through multimedia. The term "multimedia" itself can take many forms, but it always relates to the way computers present different elements. Multimedia is common on a variety of kinds of websites and if you use a computer, you use multimedia communication daily. Communication technologies in multimedia can take an ordinary lecture or sermon and turn it into an extraordinary experience the audience will not forget.

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Communication technologies in multimedia such as using video, SMART boards and projector slide programs such as PowerPoint can make your communication more effective. Every person learns differently and needs various avenues of communication to receive the message effectively.

Communication technologies in multimedia can cover multiple aspects of communication types such as audio and visual learning and in one presentation.

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Audio Communication:

A common form of Web-based multimedia communication is audio communication. This form involves receiving a message through an audio format, such as listening to an online radio station or playing a music file. If you use the Internet to stream a radio station broadcast, for example, you are engaging in a form of audio communication. Audio communication often combines with other forms of multimedia communication. A slideshow, for example, can feature text, images and audio together.

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b) *Identify at least twelve different examples of multimedia and also describe six of them in detail. (10)*

Text Communication:

Text communication encompasses a variety of forms and is one of the most common forms of multimedia communication In a computer user's day-to-day activities. Text communication includes such areas of Internet use as reading a website, reading and writing email messages and instant messaging.

Text communication is also the oldest form of multimedia communication, as the first computers displayed text only.

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Image Communication:

Though images might not seem to be a form of communication in the same way that text is a form of communication, it is a legitimate form of multimedia communication that many users enjoy daily. Examples include browsing an online photo album, opening and viewing images attached to an email and looking at photos that accompany stories on news websites.

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Video Communication:

As its name indicates, video communication is a form of multimedia communication through video. It is common on many websites, including YouTube and the websites of television stations. Since high-speed Internet has become common, video communication has increased as users are able to access this form of multimedia communication. Types of video communication include .AVI, MPEG, WMV and QuickTime files.

Animation Communication:

" One of the most exciting forms of pictoral presentation is animation. Animation refers to a simulated motion picture depictingmovementof drawn (or simulated) objects. The main features of this definition are as follows: (1) picture - an animation is a kind of pictorial representation; (2) motion - an animation depicts apparent movement; and (3) simulated - an animation consists of objects that are artificially created through drawing or some other simulation method."

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Graphic Communication:

Computer graphics are pictures and films created using computers. Multimedia is content that uses a combination of different content forms such as text, audio, images, animations, video and interactive content. This lesson introduces computer graphics, including raster and vector graphics, and web multimedia audio and video content.

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Q.5 *Write short notes (in your own words) on the following topics:* (20)

➢ *Computer Languages*

A computer language in the most popular terms is a set of instructions we can use to write meaningful programs for a computer to execute.

Now, the computer does not understand the languages we write with. Computers are not humans. They only understand whether an electric charge is applied to them, or not applied to them.

In other words, computers understand when something is on, and when something is off.

Because it would take us a long time to write a program with millions of on/off combinations, computer scientists invented a way for us to write instruction as alphanumeric expressions, and let some other machine translate our English-like instructions into millions of on/off combinations.

Those machines are called interpreters, or compilers. Interpreters and compilers are not exactly the same thing, but that is not part of this conversation.

So, what is a computer language?

A computer language in human terms is an English-like set of instructions we can use to communicate with a compiler.

The compiler then translates our instructions into millions of on/off combinations, which the computer can understand.

Different languages use different compilers, and that's how we can program the same computer by using different flavors of English-like instructions.

➢ *Development of Software*
  Software development is the process of conceiving, specifying, designing, programming, documenting, testing, and bug fixing involved in creating and maintaining applications, frameworks, or other software components. Software development is a process of writing and maintaining the source code, but in a broader sense, it includes all that is involved between the conception of the desired software through to the final manifestation of the software, sometimes in a planned and structured process.Therefore, software development may include research, new development, prototyping, modification, reuse, re-engineering, maintenance, or any other activities that result in software products.

  Software can be developed for a variety of purposes, the three most common being to meet specific needs of a specific client/business (the case with custom software), to meet a perceived need of some set of potential users (the case with commercial and open source software), or for personal use (e.g. a scientist may write software to automate a mundane task). Embedded software development, that is, the development of embedded software, such as used for controlling consumer products, requires the development process to be integrated with the development of the controlled physical product. System software underlies applications and the programming process itself, and is often developed separately.

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