Chapter = 01

Fundamentals of Computer

Q1. Discuss the use of computer in any two Fields of life.

Use of computer in field of life

Education

Computers have revolutionized the teaching profession in multiple ways. Teachers use computers to record grades, calculate averages, manage attendance and access data on student performance in online programs and assessments. Computers have also made it easier for teachers to vary their instructional delivery.

Business

Computers help in research, production, distribution, marketing, banking, team management, business automation, data storage, employee management, and very helpful to increase productivity at a lower cost, less time with high quality.

Banking

Banks and other financial institution are heavy users of computers in maintaining customer's accounts, ledger, updating, electronic fund transfer and processing of huge amount of cheques, credit cards, and the major transactions that takes place daily

Q2. Differentiate Compiler and Assembler.

Compiler	Assembler
Compiler translates high level programming language code to machine level code.	Assembler converts the assembly level language to machine level code.
Source code in high level programming language.	Assembly level code as input.
Compiler checks and converts the complete code at one time.	Assembler generally does not convert complete code at one time.
lexical analyzer, Syntax analyzer, Semantic analyzer, Code optimizer, Code generator, and Error handler	Assembler does works in two passes.
Mnemonic version of machine code.	Binary version of machine code.
C, C++ , Java compilers.	GAS, GNU assemblers.

Q3. Differentiate System and Application software.

System Software.	Application Software.
System Software is the type of software which is the interface between application software and system.	Application Software is the type of software which runs as per user request.

In general System software are developed in low level language which is more compatible with the system hardware in order to interact with.	While in case of Application software high level language is used for their development as they are developed as some specific purpose software.
System software is used for operating computer hardware.	On other hand Application software is used by user to perform specific task.
System software are installed on the computer when operating system is installed.	On other hand Application software are installed according to user's requirements.
As mentioned in above points system software are specific to system hardware so less or no user interaction available in case of system software.	On other hand in application software user can interacts with it as user interface is available in this case.
System software can run independently. It provides platform for running application software.	On other hand in application software can't run independently. They can't run without the presence of system software..
Some examples of system software's are compiler, assembler, debugger, driver, etc.	On other hand some examples of application software's are word processor, web browser, media player, etc.

Q4. Describe artificial intelligence with examples.

Artificial Intelligence

The term A.I. may also be referred to any machine that displays qualities associated with a human brain such as learning, reasoning and problem solving. A.I. is also used for Machine Learning. It learns from our daily routines and suggests us different options.

Example

Like google maps suggest the best ways for our daily commute. A.I. is vastly used in scientific experiment, healthcare and space technologies.

Q5. Discuss Impact and Non-Impact Printers with examples.

Impact Printers:

It is a type of printer that works by direct contact of an ink ribbon with paper. These printers are typically loud but remain in use today because of their unique ability to function with multipart forms. An impact printer has mechanisms resembling those of a typewriter.

Example of Impact Printers

Dot-matrix printers, Daisy-wheel printers, and line printers.

Non-Impact Printers:

It is a type of printer that does not hit or impact a ribbon to print. They used laser, xerographic, electrostatic, chemical and inkjet technologies. Non-impact

printers are generally much quieter. They are less likely to need maintenance or repairs than earlier impact printers.

Example of Non-Impact Printers

Inkjet printers and Laser printers.

Q6. Write the use of these storage devices: Hard Disk, USB Flash Disk, SD Card.

Hard Disk

A hard disk drive (HDD) is a non-volatile computer storage device containing magnetic disks or platters rotating at high speeds. It is a secondary storage device used to store data

USB Flash Disk

USB flash drives are often used for storage, data back-up and transferring of computer files. Compared with floppy disks or CDs, they are smaller, faster, have significantly more capacity, and are more durable due to a lack of moving parts.

SD Card

An SD card is a storage device that is used to store data You can add an SD card to a small device, like a mobile phone, to extend the storage space available for ringtones, texts, apps, music and other data.

Q7. Which monitor will you prefer in your school; CRT or FPD? Why? FPD(flat panel display) monitor will he more preferable than CRT monitor, because ,

- It use less electricity
- It dose not emits ray which emitted by CRT monitor which effect the eyes of uses
- It use small area whereas CRT need bigger area
- FPD have a picture quality is better than CRT monitor

Q8. List any five components present on motherboard.

Components on motherboard

1. Microprocessor (CPU)
2. Ports
3. Buses
4. RAM
5. ROM

Q9. Outline the various generations of computers

(a) First Generation of Computers (1940 to1956)

Based on vacuum tubes, first generation computers were very large in size. This generation computers used machine language (i.e. 1's and 0's).Magnetic drums were used as primary internal storage medium and punched cards for input. In this generation mainly batch processing operating system was used.

Examples

Electronic Numerical Integrator and Calculator (ENIAC), Universal Automatic Computer (UNIVAC)

(b) Second Generation of Computers (1956 to 1963)

Because of transistors computers became smaller, faster, cheaper and more efficient. Assembly language and a high-level language FORTRAN were introduced. Magnetic core was used as primary internal storage medium. Punched Cards were used for input. Batch processing and Multiprogramming Operating systems were used. These computers were mainly used for commercial productions, scientific and engineering analysis and design.

Examples

IBM 7094 and IBM 1401

(c) Third Generation of Computers (1964 to 1971)

Use of ICs further decreased size of computers and increased the speed and efficiency. Less expensive computers were introduced. High level programming languages such as Pascal and COBOL were used. Keyboard as input and monitor as output also eased the use of computer.

Example

IBM 370 are the examples of this generation's computers.

(d) Fourth Generation of Computers (1971 to Present)

The invention of microprocessors was revolutionary which caused the development of faster, less expensive, smaller and more reliable computers. They used semi-conductor memories RAM and ROM and magnetic storage became popular. More high-level languages were introduced like C, C++, Java, etc.

Examples

Apple Macintosh, IBM PC.

(e) Fifth Generation of Computers (Present and Beyond)

Fifth Generation computing devices are still being developed. In this generation computers will be capable of self- learning, reasoning and generalization.

Q10. Define Analog Computer, Digital Computer and Hybrid Computer.

(a) Analog Computers

Analog Computers are used to process analog data. Analog data are in the form of continuously varying physical quantities like pressure, temperature, voltage, speed and weight. Examples of Analog computer are speedometer of a car, voltmeter etc.

(b) Digital Computers

Digital Computers are most commonly used type of computers. They are used to process information with quantities using the binary number system (0's and 1's). Digital Computers are used in home, educational institutes, offices, business, scientific fields, etc.

(c) Hybrid Computers

Hybrid Computers are the combination of Analog and Digital Computer system. These computers combine analog and digital features of computers in a single machine. A Hybrid Computer uses analog to digital and digital to analog conversion. It may input or output either digital or analog data.

Q11. What are Super Computers, Mainframe, Minicomputer and Microcomputers.

(a) Super Computers

Super Computers are the most powerful, fastest and largest computers. They are extremely expensive. These computers are widely used in scientific applications such as aerodynamics, design simulations, processing of geological data, weather forecasting and nuclear research.

(b) Mainframe

Mainframe Computers are powerful multi-user and multiprocessors computers. They can process huge amount of calculations at very high speed. Mainframes are also very expensive and require a lot of technical expertise to be installed and operated. They are used in banks and many large business organizations where several users work simultaneously.

(c) Minicomputer

These are smaller than mainframe computers, but they are more powerful than Microcomputers. Minicomputers usually use multi-user operating system. Multiple users can use the Minicomputers through terminals. Minicomputers may be used as network servers and Internet servers. DEC VAX and IBM AS/400 are good examples of minicomputers.

(d) Microcomputers

Microcomputers are also called Personal Computers (PCs). The use of microprocessor has made computers cheaper yet faster and more reliable. These are the smallest computers designed to be used by individuals. PCs can be used for variety of tasks like documentation, calculations, illustration and

entertainment. The power of network and internet has also made it more useful. Now computers are also used for communication and socialization.

Q12. Write shot note on mother board.

Mother board

The motherboard is the main board which connects different parts of computer. It includes the following general components: Microprocessor (CPU), Slots, Ports, Buses, RAM, ROM and other electronic components for example resistors, capacitors, diodes, transistors, jumpers etc.

Just like nervous system it allows communication between all parts of the computer. We can find CPU, memory slots, expansion slots and a number of chipsets on motherboard. Motherboards also have connectors called ports. These ports are used to connect input, output and other peripheral devices.

Q13. what is an Arithmetic Logic Unit ALU and Control Unit CU.

(a) Arithmetic Logic Unit (ALU)

ALU performs all the actual calculations like arithmetic operations and logical comparisons. Arithmetic operations include addition, subtraction, multiplication and division while logical comparisons include comparing, selecting and matching of data.

(b) Control Unit (CU)

Control Unit is responsible for controlling the transfer of data and instructions among other units of a computer. This unit controls the operations of all parts of

the computer but does not carry out any actual data processing operations. CU functions just like a traffic policeman. It manages and coordinates all the units of the computer.

Q14. Define Buses and it types

Buses

In computer, Buses are the electric paths on which data is sent and received by different components. They are just like roads. As roads connect different places, buses connect all the parts of the computer to each other. They also connect all internal components on the motherboard. There are three types of buses

1. Control bus
2. Data bus
3. Address bus.

Control Bus *carries command between different components to control all activities in a computer.*

Data Bus *carries data between the processor, memory unit and other components.*

Address Bus *carries* the address of the data (but not the data).The address bus is used to specify memory location to be used by micro process for specific operation.

Q15. Differentiate between Soft Copy and Hard Copy

Soft Copy	Hard Copy
It is screen display or voice output.	It is output on paper.
It is volatile output and lost when other output is shown or computer is turned off	It is nonvolatile output that is relatively stable and permanent form
Monitor, speaker are examples of soft copy	Printer, plotter are examples of hard copy

Q16. What is plotter?

Plotters

Like printer it gives images on paper but typically used to print large format images such as maps, construction drawing, advertising hoardings etc.

Q17. Define monitor and its types

Monitors

It is TV like device that displays data by small bright dots called pixels.

Monitors are of two types.

Cathode Ray Tube (CRT)

CRT monitor contains millions of tiny red, green, and blue phosphor dots that glow when struck by an electron beam that travels across the screen to create a visible image. The illustration below shows how this works inside a CRT.

Flat Panel Display (FDP)

A flat-panel display (FPD) is an electronic display device used to enable people to see content in a range of entertainment, consumer electronics, personal computer, and mobile devices, and many types of medical, transportation and industrial equipment. They are far lighter and thinner than traditional cathode ray tube (CRT) television sets and are usually less than 10 centimeters (3.9 in) thick.

Q18. Differentiate between ROM and RAM

ROM	RAM
ROM is non-volatile, not requiring power to store data.	RAM is volatile, requiring power to store data.
ROM is often used to store the BIOS program on a computer motherboard.	RAM is used in computers to temporarily store files in use on the computer.
ROM chips often have a storage capacity of 4 to 8 MB.	RAM chips often range in storage capacity from 1 to 256 GB.
ROM can vary in size	RAM is available in two primary sizes

Q19. Prepare a table of generations.

Generation	Period	Technology	Example of Machines

First	1940 - 1956	Vacuum tubes	ENIAC, UNIAC
Second	1956 – 1963	Transistor	IBM 7094
Third	1964 – 1971	Integrated circuit	IBM 360
Forth	1971 - present	Microprocessor	IBM PC
Fifth	Present - beyond	Artificial Inelegancy	Laptop

Choose the right answer

1. The device that converts hard copy into soft copy is:

a) printer b) plotter

c) scanner d) barcode reader

2. The volatile memory

a) is permanent b) loses contents as the power is off

c) possesses large storage d) manages hardware resources

3. Media players are:

a) business software b) education software

c) entertainment software d) productivity software

4. The programs that are generally installed to manage and maintain overall computer resources is:

a) operating system b) utility program

c) language translator d) device driver

5. Modern languages use

a) compiler b) interpreter

c) convertor d) assembler

6. A collection of wires connecting the CPU with main memory that is used to identify particular locations is:

a) control bus b) data bus

c) address bus d) memory bus

7. The inexpensive and most commonly used computers are:

a) super computer b) mainframe computer

c) minicomputer d) microcomputer

8. Computer cannot start without:

a) operating system b) utility program

c) device drivers d) business software

9. Graphical User Interface (GUI) was developed in:

a) second generation b) fourth generation

c) mechanical era d) electro-mechanical era

10. A person who uses different programming languages to develop programs is:

a) database administrator b) web designer

c) software engineer d) graphic designer