Computer Concepts

Assignment - I

* Short Question

1 Define data and information. How are they different?

⇒ Data refers to raw unprocessed facts such as temperature readings, customer names etc.

Information refers to processed data that is meaningful such as temperature readings.

In simple terms data is the input and information is processed output.

2 What are the steps involved in data processing cycle?

⇒ The steps involved in data processing cycle are:-

Input : Collection of raw data.
Processing: Converting data into information
Output : Presenting processed data
Storage : Saving processed data for future use.

3 Differentiate between Hardware and Software.

⇒ Hardware refers to the physical parts of a computer. Whereas Software is a list of instructions for the hardware.

4 Classify the different types of computers with example.

⇒ Classification of Computers on the basis of:

(i) Function:
Analog Computer: Speedometer
Digital Computer: Personal Computers
Hybrid Computer: Flight Simulators

(ii) Size and Power:
Micro Computer: Desktops
Mini Computer: DEC PDP-8
Mainframe Computer: IBM Z
Super Computer: Fugaku

(iii) Purpose:
Special Purpose Computer: Computers with TTS for visually impaired
General Purpose Computers: Desktops

4 What is the purpose of Programming language and give examples?

⇒ The purpose of Programming Languages is to provide instructions for the computer hardware. Some examples of programming language are:

(i) Machine language
(ii) Markup language
(iii) Java
(iv) C/C++.

Long Question

1. Write a detailed note on the evolution of computers from Abacus.

The history of computers:

Abacus is a manual counting device used for basic calculation using beads and rods. This was followed by mechanical calculator invented by Blaise Pascal, which led to the computation of more complex problems. This was followed by the first generation of computers which were marked by their colossal size and use of vacuum tubes. They were large, inefficient and produced extreme amounts of heat as compared to today's system but since they got the job done,

it was considered innovation.

The second generation of computers were marked by the use of transistors which were more reliable than the vaccum tubes used by it's predecessor This generation was smaller and cheaper than the first generation but still did not reach the public

Third generation of computers started with the use of Integrated circuits This innovation made the computer much smaller and compact as well as much more ayordable More public and institutions started deploying these devices but it was still a pipe-dream for the majority of the public.

The fourth generation computer followed closely by the fifth generation are primarily based on VLSIC (Very large Scale Integrated Circuit). The fourth generation of computers is what made computers a household tool, as computers got so compact that they now fit on our wrists as watches, fingers as smart rings and pockets as mobile phones.

Whereas 5th generation of computer is a concept in development close to fruition as the current development in the field of AI and quantum computing.

2. Explain Data processing cycle with examples.

Input : Refers to feeding raw data to the computer. Eg: Entering student name and marks

Processing : Computing credible and understandable information from raw data. Eg: Calculating total and percentage

Output : Displaying the processed data. Eg: Displaying the grade

Storage : Storing data for future use. Eg: Storing the data in a DB.

3 Describe the classes of software and their roles.

There are two classes of softwares, System software and Application softwares.

System Softwares manages hardware and system operations. This encompasses Operating systems, system utilities, device drivers etc. These software primarily manage resources, provide user interface, manage system security and ensure software updates.

Application softwares are those softwares that are more user oriented. Eg: Web browsers, Media Players, Word Processors, etc. They are designed typically for end-user use. These softwares are more user-friendly, support wide range of tasks, enhance productivity, provide essential tools for daily use and much more.

Compare and contrast mainframe, mini and microcomputers in terms of purpose and application.

⇒

Feature	Mainframe	Mini	Micro
Purpose	Large-scale processing	Medium Tasks	Personal use
Users	Thousands simultaneous	Dozens	One user
Cost	Extremely high	Moderate	Affordable
Examples:	IBM Z	PDP series	Laptops PCs etc

Discuss the classification of programming languages with examples

~~(Procedural)~~

→ Machine Language: This language is written in binary and can be directly understood by the machine

→ Assembly Language: This uses mnemonic which can easily be translated to machine code

→ High level: This is primarily written in english easy for us to understand need operate

software to translate to machine language

→ Database languages : 4GL or fourth generation languages. Used in database manipulation. Eg SQL, NoSQL etc.

→ Markup languages : These are languages used primarily in Web development. Eg: HTML, Markdown [lightweight Markup language] XML etc.