Questions and answers

1.	What do you understand by Digital Computer? Programs and data are saved and processed in binary format. All electronic components and circuits can detect/ process/generate two levels of discrete signals.
2.	What are the main functional units of a computer? CPU, Memory, Input/Output devices and bus system.
3.	How the functional units are connected? Through a network of conducting pathways/wires, called bus system.
4.	What are the functional units of a CPU? A few high speed electronic storage, called Registers, electronic circuits for arithmetic (mathematical) and logical operations, called ALU and control unit to control all internal and external operations of processor and computer.
5.	What is a Microprocessor? An integrated circuit (IC) containing all functional units (registers, ALU and control unit) of a CPU.
6.	What do you understand by a 64 bit processor? A processor that can process 64-bit data at a time. ALU is 64-bit.
7.	What do you understand by a multi-core processor? An integrated circuit (IC) containing all functional units (registers, ALU and control unit) of more than one simple CPUs.
8.	What are the functions of a CPU? Run programs: computations, data processing, store information.
9.	What do you understand by stored-program computer? Both program and data are represented in binary and stored in storage for long time. When we intend to run a program that is loaded into primary memory. Programs can be modified easily and stored to storage for use even the computer is turned off.
10.	How data are processed in computers? Data are processed through simple, addition, subtraction, multiplication, complement, AND, OR, shift, rotate, data transfer etc. These simple operations are repeated many times a very fast rate.
11.	What is CPU clock signal? A highly precise timing signal used by CPU to sequence and synchronize its operations. Frequency of this timing signal, represented in MHz/GHz, is used as one of the performance measures of a processor as well as a computer.
12.	What is RAM? What does it hold? Why it is named so? Random access memory, also called primary/main memory is used to hold programs and data that the processor currently runs. The time to access any location of this memory is independent of its physical position. So it is called random access.
13.	How programs and data are saved in memory? In binary format.
14.	How to measure capacity of a RAM? MB(Mega Bytes), GB(Giga Bytes) etc
15.	What is ROM? What does it hold? Whys it is named so? Read only memory. It is a non-volatile memory that is used to store important information which is used to operate the system. The memory from which CPU can only read but cannot write on it. This type of memory is non-volatile.
16.	What is a program? A list of instructions for basic operation to perform any computation/task.
17.	What is operating system? Software to manage hardware resources, user interface, file management etc.
18.	What languages users use to write programs? Using high level language, containing English words and arithmetic & logical notations etc.

19.	What is a compiler? Program to convert user programs written in high level language into machine coded.
20.	What is Cache memory? A very fast memory located on CPU and on motherboard to hold frequently and recently used data and instructions.
21.	Why programs and data are required to convert into binary? The hardware is designed to store binary (2-states) states. Transistors are usually used to design CPU. Transistors are used as switches; ON – OFF states represent binary bits 1's and 0's. The lowest level of program contains 1's and 0's.
22.	How data are processed in digital computers? In binary format and in very basic steps.
23.	How does computer run a program? A program is converted into a list of basic Instruction and CPU processes instructions sequentially.
24.	How to measure performance of a CPU? Number of basic operations/instructions per second.
25.	How to improve performance of a CPU? Using cache memory, Improved hardware, better compilers, efficient algorithms etc. Transistor density grows quadratically while speed grows linearly, architects used more transistors to improve performance.
26.	How to measure performance of a Computer? Run time of standard (benchmark) programs.