Course: Computer Skills/ Applications
Semester: 4th
Instructor: Zakir Rahim
Due Date: 21 August, 2020

Program:BS(DT/RAD/MIC)
Total Marks: 30
Time: 4 Hours

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Instructions:

- Students are required to solve the provided assignment and upload it on SIC within specified time.
- The solutions must be type-written.
- The solutions must be uploaded either in Ms-Word format or pdf format.
- Students are required to save the file with their name and student id. For example ahmad_12345.

Q1. (a) In your opinion what are the 3 most important characteristics of computers, Explain each characteristic? (5)

Ans:-Basic characteristics about computer are:

1. Speed: - As you know computer can work very fast. It takes only few seconds for calculations that we take hours to complete. You will be surprised to know that computer can perform millions (1,000,000) of instructions and even more per second.

Therefore, we determine the speed of computer in terms of microsecond (10-6 part of a second) or nanosecond (10 to the power -9 part of a second). From this you can imagine how fast your computer performs work.

2. Accuracy: - The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is **7.**

determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.

3. Diligence: - A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

(b) Write key characteristics of fourth generation of computers? (5)

Ans:-

1:-Small, affordable, reliable, and easy to use PCs

2:- More powerful and reliable mainframe systems and supercomputers

3:- Totally general purposemachines

4:- Easier to produce commerciall

Q2. (a)Discuss the importance of Arithmetic logic unit and Control unit of a computer system? (5)

Ans:-importance of arithmetic logic unit:-

Arithmetic Logic Unit of a computer system is the place where the actual executions of instructions takes place during processing operation
Importance of control unit of computer:-

Control Unit of a computer system manages and coordinates the operations of all other components of the computer system

(b)Write a detailed note on importance of RAM (Random Access Memory)? (5)

Ans:-RAM:-

RAM (Random Access Memory) is the internal memory of the CPU for storing data, program, and program result. It is a read/write memory which stores data until the machine is working. As soon as the machine is switched off, data is erased.

Access time in RAM is independent of the address, that is, each storage location inside the memory is as easy to reach as other locations and takes the same amount of time. Data in the RAM can be accessed randomly but it is very expensive.

RAM is volatile, i.e. data stored in it is lost when we switch off the computer or if there is a power failure. Hence, a backup Uninterruptible Power System (UPS) is often used with computers. RAM is small, both in terms of its physical size and in the amount of data it can hold.

RAM is of two types −

- Static RAM (SRAM)
- Dynamic RAM (DRAM)

Static RAM (SRAM)

The word static indicates that the memory retains its contents as long as power is being supplied. However, data is lost when the power gets down due to volatile nature. SRAM chips use a matrix of 6-transistors and no capacitors. Transistors do not require power to prevent leakage, so SRAM need not be refreshed on a regular basis.

There is extra space in the matrix, hence SRAM uses more chips than DRAM for the same amount of storage space, making the manufacturing costs higher. SRAM is thus used as cache memory and has very fast access.

Characteristic of Static RAM

- Long life

- No need to refresh
- Faster
- Used as cache memory
- Large size
- Expensive
- High power consumption

Dynamic RAM (DRAM)

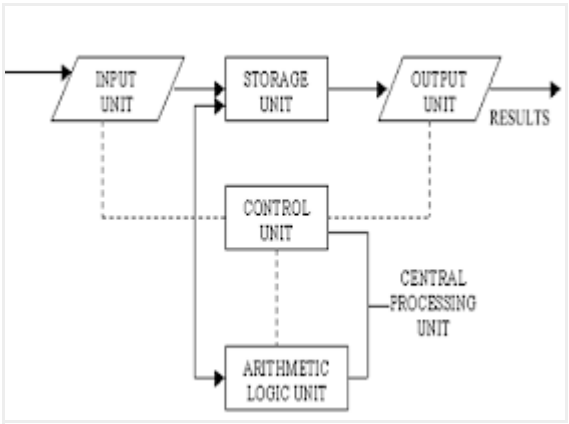
DRAM, unlike SRAM, must be continually **refreshed** in order to maintain the data. This is done by placing the memory on a refresh circuit that rewrites the data several hundred times per second. DRAM is used for most system memory as it is cheap and small. All DRAMs are made up of memory cells, which are composed of one capacitor and one transistor.

Characteristics of Dynamic RAM

- Short data lifetime
- Needs to be refreshed continuously
- Slower as compared to SRAM
- Used as RAM
- Smaller in size
- Less expensive
- Less power consumption

Q3. Write a detailed note on Basic Organization of a computer System along with the functions of each part.
(10)

Ans:Basic Organization along with function of each part:-



Input:

1. It accepts (or reads) instructions and data from outside world
2. It converts these instructions and data in computer acceptable form
3. It supplies the converted instructions and data to the computer system for further processing

Output Unit:

1. It accepts the results produced by the computer, which are in coded form and hence, cannot be easily understood by us

2. It converts these coded results to human acceptable (readable) form

3. It supplies the converted results to outside world

Storage Unit:

1. Data and instructions required for processing (received from input devices)
2. Intermediate results of processing
3. Final results of processing, before they are released to an output device

Two Types of Storage

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Primary storage

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Secondary storage

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Primary storage:
Used to hold running program instructions
Used to hold data, intermediate results, and results of ongoing processing of job(s)
Fast in operation
Small Capacity
Expensive
Volatile (looses data on power dissipation)

Secondary storage
Used to hold stored program instructions
Used to hold data and information of stored jobs
Slower than primary storage
Large Capacity
Lot cheaper that primary storage
Retains data even without power

Arithmetic Logic Unit (ALU) :-

Arithmetic Logic Unit of a computer system is the place where the actual executions of instructions takes place during processing operation.

Control Unit (CU) :-

Control Unit of a computer system manages and coordinates the operations of all other components of the computer system.