Course: Computer Skills/ Applications   **Program:BS(DT/RAD/MIC)**
Semester: 4th   **Total Marks:** 30
Instructor: Zakir Rahim   **Time**: 4 Hours
Due Date: 21 August, 2020

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)

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

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

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

Q3. Write a detailed note on Basic Organization of a computer System along with the functions of each part. (10)
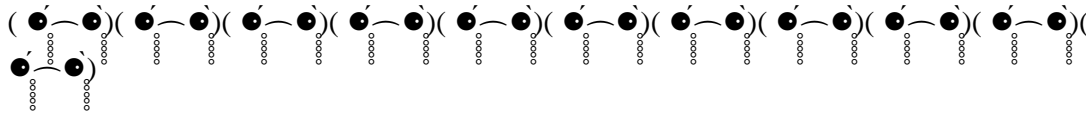
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Summer Assignment
Name: AMJAD ULLAH
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Deportment: BS RADIOLOGY
Date: 21/08/2020

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Q No 1: (A)

Ans: THE THREE MOST IMPORTANT

CHARACTERISTICS:

There are some essentials that successful people have as part of their makeup—and no, this has nothing to do with cosmetics. Both men and women have their own "makeup." For successful types, it's what helped them get to where they are today. Without these necessities in someone's "makeup kit"—or the qualities and traits that help define a person—it's difficult to make it to the top of the ladder of success that so many people attempt to climb.

EXPLAIN EACH CHARACTERISTICS:

1. **BE HONEST WITH YOURSELF.** If you lie to yourself about why you're where you are in life or you continue making excuses, you won't be able to see your true situation for what it is. Sit down and think; identify what's blocking you. It could be fear of failure (or even fear of success). Be completely honest about your current circumstances, why you're there, and what's holding you there.

2. **BE REAL.** Are you someone who procrastinates or who hates admitting you're wrong? Do you blame others for your failures? If so, it's time to work on these negative traits and turn them into positive ones. You might need someone in your life to hold you accountable. For every characteristic that you need to work on, create a plan to turn it around and put that plan into action.

3. **BE WILLING TO CHANGE.** This isn't easy, especially if you've practiced the same bad habits for years. However, it's not impossible if you want it badly enough. Take each day as it comes, making positive changes bit by bit. Encourage yourself when you do well, and don't beat yourself up too much if you fall short. Simply pick yourself up and start over.
   When you have on the right makeup, it expands the number of opportunities on your horizon, so check that your makeup bag has all the essentials in it if you want to succeed.

Q No 1: (B)

Ans: COMPUTERS

A computer is basically an electronic machine that can process information. However, the "process" could be anything. For example, it could be the addition or any other arithmetic operation. Otherwise, it could be just the instruction to group a given set of data or to ungroup it. Today's computers have the power to carry out billions of calculations in a second and return results that are very accurate and reliable. How did it all happen? Where did it all start?

GENERATIONS OF COMPUTERS

The computers of today find their roots in the second half of the twentieth century. Later as time progressed, we saw many technological improvements in physics and electronics. This has eventually led to revolutionary developments in the hardware and software of computers. In other words, soon the computer started to evolve. Each such technological advancement marks a generation of computers. Let us begin with the first one.

FOURTH GENERATION OF COMPUTERS

Fourth Generation of computers was between 1971 – 1980. These computers used the VLSI technology or the Very Large Scale Integrated (VLSI) circuits technology. Therefore they were also known as the microprocessors. Intel was the first company to develop a microprocessor. The first "personal computer" or PC developed by IBM, belonged to this generation. VLSI circuits had almost about 5000 transistors on a very small chip and were capable of performing many high-level tasks and computations. These computers were thus very compact and thereby required a small amount of electricity to run.

EXAMPLES are STAR 1000, CRAY-X-MP(Super Computer), DEC 10, PDP 11, CRAY-1. This generation of computers had the first "supercomputers" that could perform many calculations accurately. They were also used in networking and also used higher and more complicated languages as their inputs. The computer languages like languages like C, C+, C++, DBASE etc. Were the input for these ccomputers.

Q No 2: (A)
Ans: IMPORTANCE OF(ALU)

An arithmetic unit, or ALU, enables computers to perform mathematical operations on binary numbers. They can be found at the heart of every digital computer and are one of the most important parts of a CPU (Central Processing Unit).

IMPORTANCE OF(CU)

The control unit (CU) is a component of a computer's central processing unit (CPU) that directs the operation of the processor. It tells the computer's memory, arithmetic and logic unit and input and output devices how to respond to the instructions that have been sent to the processor

Q NO 2: (B)

Ans: DETAILS NOTE ON IMPORTANCE OF (RAM)

Computer random access memory (RAM) is one of the most important components in determining your system's performance. RAM gives applications a place to store and access data on a short-term basis. It stores the information your computer is actively using so that it can be accessed quickly.

RAM(Random Access Memory) is a part of computer's Main Memory which is directly accessible by CPU. RAM is used to Read and Write data into it which is accessed by CPU randomly. RAM is volatile in nature, it means if the power goes off, the stored information is lost.

Although all RAM basically serves the same purpose, there are a few different types commonly in use today:

Static RAM (SRAM)

Dynamic RAM (DRAM)

Synchronous Dynamic RAM (SDRAM)

Single Data Rate Synchronous Dynamic RAM (SDR SDRAM)

Double Data Rate Synchronous Dynamic RAM (DDR SDRAM, DDR2, DDR3, DDR4).

Q No 3:

Ans: A computer consists of five functionally independent main parts input, memory, arithmetic logic unit (ALU), output and control unit. ... This is either stored in the memory or immediately used by the processor to perform the desired operations. The program stored in the memory determines the processing steps.

COMPUTER TYPES

A computer can be defined as a fast electronic calculating machine that accepts the (data) digitized input information process it as per the list of internally stored instructions and produces the resulting information. List of instructions are called programs and internal storage is called computer memory.

The different types of computers are:

PERSONAL COMPUTERS: This is the most common type found in homes, schools, business offices, etc. It is the most common type of desktop computers with processing and storage units along with various in put and out put devices.

NOTEBOOK COMPUTERS: These are compact and portable versions of PC.

WORK STATIONS: These have high resolution input/output (I/O) graphics capability, but with same dimensions as that of desktop computer. These are used in engineering applications of interactive design work.

ENTERPRISE SYSTEMS: These are used for business data processing in medium to large corporations that require much more computing power and storage

CAPACITY THAN WORK STATIONS. Internet associated with servers have become a dominant worldwide source of all types of information.

SUPER COMPUTERS: These are used for large scale numerical calculations required in the applications like weather forecasting etc.

FUNCTIONAL UNIT

A computer consists of five functionally independent main parts input, memory, arithmetic logic unit (ALU), output and control unit.

FUNCTIONAL UNITS OF COMPUTER

Input device accepts the coded information as source program i.e. high level language. This is either stored in the memory or immediately used by the processor to perform the desired operations. The program stored in the memory determines the processing steps. Basically the computer converts one source program to an object program. i.e. into machine language. Finally the results are sent to the outside world through output device. All of these actions are coordinated by the control unit.

INPUT UNIT: The source program/high level language program/coded information/simple data is fed to a computer through input devices; keyboard is a most common type. Whenever a key is pressed, one corresponding word or number is translated into its equivalent binary code over a cable and fed either to memory or process. Joysticks, trackballs, mouse, and scanners are other input devices.

MEMORY UNIT: Its function into store programs and data.

It is basically to two types

1.Primary memory

2.SECONDARY MEMORY

1. **PRIMARY MEMORY: Is the one exclusively associated with the processor and operates at the electronics speeds programs must be stored in this memory while they are being executed. The memory contains a large number of semiconductors storage cells.Each ALU Processor Control Unit capable of storing one bit of information. These are processed in a group of fixed site called word. To provide easy access to a word in memory, a distinct address is associated with each word location. Addresses are numbers that identify memory location. Number of bits in each word is called word length of the computer. Programs must reside in the memory during execution. Instructions and data can be written into the memory or read out under the control of processor. Memory in which any location can be reached in a short and fixed amount of time after specifying its address is called random-access memory (RAM). The time required to access one word in called memory access time. Memory which is only readable by the user and contents of which can't be altered is called read only memory (ROM) it contains operating system. Caches are the small fast RAM units, which are coupled with the processor and are often contained on the same IC chip to achieve high performance. Although primary storage is essential it tends to be expensive.**

2. **SECONDARY MEMORY: Is used where large amounts of data & programs have to be stored, particularly information that is accessed infrequently.**
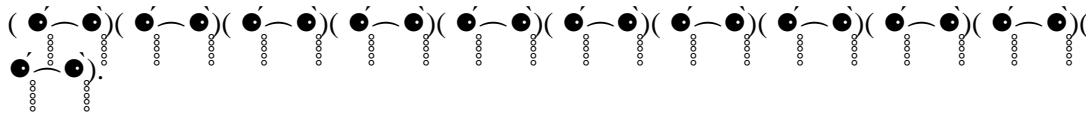
EXAMPLES:Magnetic disks & tapes, optical disks (ie CD-ROM's), floppies etc., Arithmetic logic unit (ALU): Most of the computer operators are executed in ALU of the processor like addition, subtraction, division, multiplication, etc. The operands are brought into the ALU from memory and stored in high speed storage elements called register.Then according to the instructions the operation is performed in the required sequence. The control and the ALU are may times faster than other devices connected to a computer system. This enables a single processor to control a number of external

devices such as keyboards, displays, magnetic and optical disks, sensors and other mechanical controllers. Output unit: - These actually are the counterparts of input unit. Its basic function is to send the processed results to the outside world.

EXAMPLES:-

Printer, speakers, monitor etc. Control unit:-It effectively is the nerve center that sends signals to other units and senses their states. The actual timing signals that govern the transfer of data between input unit, processor, memory and output unit are generated by the control unit.

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