**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.

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***I’d : 16537***

***Class : Bs Radiology 2nd semester***

***Assignment: summer***

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

***Ans part A)***

***Characteristics of Computer:***

1. ***Speed:-*** *The speed of a computer a computer is incredibly faster than what man can possibly record or calculate normally.*
2. ***Storage:-*** *A computer system can store a large amount of data in a systematic manner.*
3. ***Accuracy and Reliability:-*** *Inspite of high speed, the computers are quite accurate and reliable in their calculations. The accuracy of operation of a computer is always 100%.*
4. ***Automatic:-*** *Once the process has been initiated, Computer is quite capable of functioning automatically. It does not require a prompt from an operator at each stage of the process.*
5. ***Diligence:-*** *Is capable of operating at exactly the same level of speed and accuracy even if it has to carry out the most voluminous and complex operations for a long period of time.*
6. ***Versatility:-*** *The wide use of computers in so many areas in day-to-day life is an ample evidence of its versatility.*
7. ***Power of Remembering :-***
8. ***No IQ:-***
9. ***No Felling:-***

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

***Ans Part B)***

***Fourth Generation of Computer (1975-till now)***

* *The fourth generation computers started with the invention of* ***Microprocessor.***
* *Software is user friendly.*
* *Storage capacity is high.*
* *Size, cost, power requirement, heat generation decreased compared to the previous generation.*
* *Problem-oriented fourth generation language is used to develop the program.*

***Computer characteristics and Capabilities:***

* ***Size:-*** *Typewriter size micro Computer.*
* ***Speed:-*** *Relatively fast as compared to Third generation, Tens of millions instructions per second.*
* ***Cost:-*** *Cost lower than third generation.*
* ***Language:-*** *High level languages like C++,KL1, RPG, SQL.*
* ***Reliability:-*** *Failure of circuits in months.*
* ***Power:-*** *Low power Consumption.*

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

***Ans Part A)***

***Arithmetic Logic Unit:***

* *Part of a computer that actually performs arithmetic and logic operations on data.*
* *All of the other elements of the computer system are three mainly to bring data into the ALU for it to process and then to take the results back out.*
* *Based on the use of simple digital logic devices that can store binary digits and perform simple Boolean logic operations.*

***Operations***

* *There are two types of operations:*
* ***1- Arithmetic Operation***
* ***2- Logical Operation***

***Memory Usage:***

* *There are two types of memory RAM and ROM*
* ***RAM***  *is main working memory used by the computer*
* *When you switch on the computer it is copied into ram*
* ***ROM:-*** *it is a special type of memory it holds software*
* *Video cards and network card also contain in rom.*

***Control Unit:***

* *CPU is partitioned into arithmetic logic unit (ALU) and Control Unit ( CU).*
* *The function of control unit is it to generate relevant timing and control signals to all operations in the computer.*
* *It controls the flow of data between the processor and memory and peripherals.*

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

***Ans Part B)***

***Introduction:***

* *Random access memory (RAM) is the best known form of computer memory.*
* *RAM is considered as volatile memory, which means that stored information is lost when there is no power .*
* *RAM is made up of small memory chips that form a memory module.*
* *Whenever you open a program, it gets loaded from the hard drive into the RAM.*
* *This is because reading data from the RAM is much faster than reading data from the hard drive.*

 ***History:***

* *RAM random Access Memory was invented by Robert Heath Dennard.*

***Types of RAM:***

* ***SRAM:-*** *SRAM holds data in a static form , as long as the memory power.*
* *Each bit is stored on four transistor that forms two cross coupled investors.*
* ***DRAM:-***
* *DRAM is called dynamic because it must constantly be refreshed and lose the data in very short time .*
* *DRAM stores each bit of data in a separate capacitor within a integrated circuit.*

***Advantage and Disadvantages:***

* *Programs will load much faster.*
* *Power efficient that uses much less power than disk drives.*
* *Volatile: a power outage will cause irrecoverable data loss .*
* *Space: limited cost per bit is high.*

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

***Ans:***

***Computer system:***

* *A system is a collection of elements that works together to solve a specific problem.*
* *Regardless of a size, every computers needs other components to produce results.*
* *The components of a computer system are:*
1. *People*
2. *Data*
3. *Procedure*
4. *Hardware*
5. *Software*

***Basic Organizations of a computer system:***

***Input Unit:***

* *An input unit of a computer system performs the following functions:*
* *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:***

* *An output unit of a computer system performs the following functions:*
1. *It accepts the results produced by the computer, which are in coded form and hence, can not be easily understood by us.*
2. *It coverts these coded results to human acceptable form.*
3. *It supplies the converted results to outside the world.*

***Storage Unit :***

* *The storage unit of a computer system holds ( or store) the following:*
* *Data and instructions required for processing (received from input devices)*
* *Intermediate results of processing.*
* *Final results of processing, before they are released to an output devices.*

***CU and ALU:***

* *Control unit of a computer system manages and coordinates the operations of all other components of the computer system.*
* *Arithmetic logic unit of a computer system is a place where the actual executions of instructions takes place during processing operations.*

***CPU:***

* *It is brain of a computer system*
* *It is responsible for controlling the operations of all other units of a computer system.*

***The system Concept:***

* *A system has following three characteristics:*
1. *A system has more than one elements*
2. *All elements of a system are logically related*
3. *All elements of a system are controlled in a manner to achieve the system goal*
* *A computer is a system as it comprises of integrated components that work together to perform the steps called the executing program*