Name: Key ID# Key

Solve all problems. Only the results written in its correct positions are graded so be neat and clear.

- Choose *one* correct answer from the list below:

➔ The CPU is made of a controller and a data path, the data path contains: 4

➔ The Instruction set architecture (ISA) contains: 8

➔ The peripheral devices can contain: 3

➔ As the machine/assembly programmer view of the computer the most concern is with: 8

➔ Functionally, the computer consists of three parts: 2

➔ These can be used to store or hold data bits of instructions or information to be used or processed: 11

1. The memory, all registers in the CPU, and the instruction set.
2. The central processing unit, the memory, and the I/O devices.
3. The printer, the display monitor, the scanner, and the keyboard.
4. The ALU and Registers.
5. The CPU, the memory, and the CD-ROM.
6. The CPU, the ALU, and the I/O devices.
7. The ALU, the IR, the IP, and the RAM.
8. The programmer-accessible registers, the memory, and the instruction set.
9. The mouse, registers, printers, RAM.
10. The memory, CPU, and instructions.
11. The RAM, ROM, CD-ROM, IR, IP.

- Circle *all* correct answers:

➔ The **Registers, RAM, ROM, Hard-disk, Floppy-disk, Cache, CD-ROM** will keep its content whenever the machine is reset.

➔ The content of the **Registers, RAM, ROM, Hard-disk, Floppy-disk, Cache, CD-ROM** will be lost when the power is down (the machine is off).

➔ The **AX, BX, CX, DX, IR, IP** is the register location to store the address of the next instruction, while the register in the CPU that holds the instruction is the **AX, BX, CX, DX, IR, IP**.

➔ The **Machine, Assembly, High-level** language is the fastest programming language in terms of writing and maintaining its code for a certain application on a specific computer.

➔ The **Machine, Assembly, High-level** language is the fastest programming language in terms of executing its code for a certain application on a specific computer.

➔ The **Machine, Assembly, High-level** language is the readable and understandable programming code that is very similar to the machines native program code written to execute a certain application on a specific computer.

➔ The **Machine, Assembly, High-level** language is the set of all instructions (in binary form) that makes up the computer's the instruction set to access some CPU registers and the memory.

➔ The compiler is the program that translates the **Machine, Assembly, High-level** language to a form of instructions (can be in binary form) to execute certain application on a specific computer.

➔ **Opcodes, Operands** field stands for instruction symbol which specifies the particular operation to be performed on the **Opcodes, Operands**.

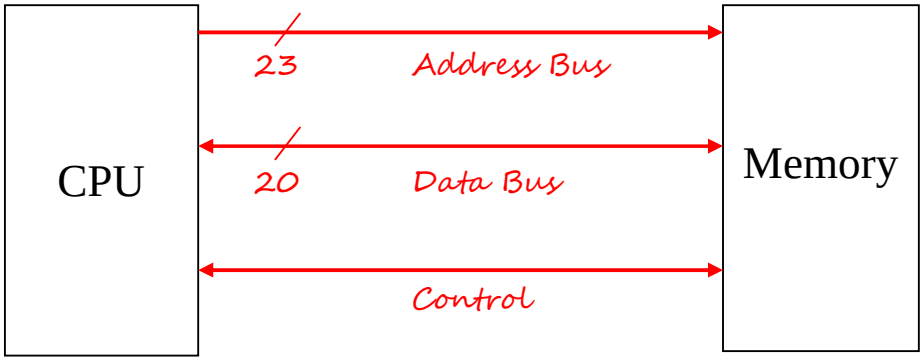
➔Order the following: **RAM, CD-ROM, Hard-Disk, Cache, Registers, and Tape (serial magnetic tapes)** in terms of their speed (start with fastest)?

Registers ➔ Cache ➔ RAM ➔ Hard Disk ➔ CD-ROM ➔ Tape

➔Determine the maximum size of main memory that can be accessed by a processor for a computer containing a 23-bit address bus, and a 20-bit data bus. Give your answer in Mbytes or Gbytes?

$$\text{Max Address} = 2^{23} = (2^{3})(2^{20}) = 8\ M$$

➔Determine in the figure below the main signals necessary in the CPU-memory interface showing clearly the bus directions and sizes according to the PC system given in the previous quiestion.



Best Wishes…
Dr. Adnan Gutub