

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
COLLEGE OF COMPUTER SCIENCE AND ENGINEERING
COMPUTER ENGINEERING DEPARTMENT

COE 205 - Term 061
Assignment #1 Solution

Q.1

What does the address bus carry?

- A. Instructions
- B. Addresses**
- C. Data

Q.2

What does the control bus do?

- A. Reads data from memory
- B. Writes data to the memory
- C. Specifies the nature of the memory/IO access**

Q.3

What is the property that makes a RAM different from a ROM?

It is volatility or the property of not retaining data after power off, for the RAM, and retaining data after power off for the ROM.

Q.4

What does "Random Access Memory" mean?

It means that there is an equal access time to access any memory location regardless of the access order.

Q.5

Are Disks part of the family of random access memories?

No, Disks are not part of the random access memories family because data has different access time depending on where the magnetic head is located at the time of the request.

Q.6

We have a Memory Device that has 18 bits of address and 16 bits of data bus. What is the total size of the memory?

- A. In words ?
 $2^{18} = 2^8 \times 2^{10} = 256 \text{ K words}$
- B. In bits ?
 $2^{18} \times 16 = 2^8 \times 2^4 \times 2^{10} = 2^{12} \times 2^{10} = 2^2 \times 2^{20} = 4 \text{ M bits}$

Q.7

What is a DRAM (Dynamic RAM) ?

- A. A very flexible memory
- B. A memory which size can be changed at will
- C. A memory which content needs to be refreshed periodically to retain data.**

Q.8

What is the function of the CPU?

- A. Reading Addresses from Memory
- B. Executing Programs**
- C. Performing additions

Q.9

What are the two units that the CPU is made of ?

- A. Data Unit (or datapath) and Control Unit**
- B. Cache Unit and CPU Unit
- C. Multiply Unit and Cache Unit

Q.10

What does Fetch mean ?

- A. Bring the clock into the CPU
- B. Read the instruction from the memory**
- C. Get an data from the instruction

Q.11

What is the instruction format?

- A. Catalog of instructions
- B. Instruction Set
- C. Bit fields organization of the instruction that help the CPU in decoding the instruction**

Q.12

What is the instruction Set?

- A. All instructions that the CPU recognizes and execute**
- B. The CPU manual
- C. The code operation

Q.13

What is the code operation ?

- A. The secret coding of the instruction
- B. The field that contains the specific code for each instruction and helps the CPU differentiates between instructions**
- C. The addressing mode

Q.14

What is an immediate operand?

- A. A constant value specified in one of the instruction format fields**
- B. An instruction that is executed immediately
- C. A fast operation

Q.15

A program written in high level language can directly be executed on the CPU.

- A. True

B. False

Q.16

The high level language is translated into machine language by a program called

- A. Compiler**
- B. Linker
- C. Address Translator

Q.17

How are instructions of the same program contained in memory?

- A. Contiguously instruction after instruction, byte after byte until the end of the program**
- B. All the Opcodes of the instructions listed one after one
- C. All the Operand fields of the instructions listed one after one

Q.18

What is the assembly language?

- A. Human-friendly representation of the machine code**
- B. Language used in factories to assemble computers
- C. Instructions on how to assemble (put together) a computer

Q.19

The difference between a register and the memory is:

- A. A register is contained in the CPU**
- B. A register does not retain information properly
- C. The memory is not connected to the CPU whereas the register is

Q.20

What is the assembler?

- A. Hardware entity that assemble the bytes together before transmitting them to the CPU
- B. Program that maps the instructions written in assembly language into machine code**
- C. Expert in assembling (putting together) computers