Name: KEY **Id#**

COE 205, Term 061

Computer Organization & Assembly Programming

Quiz# 1

Date: Tuesday, Sep. 26, 2006

Q1. Fill the blank in each of the following questions:

1. The ***Instruction Pointer (IP)*** register holds the address of the next instruction to be fetched from memory.

2. The ***Instruction (IR)*** register holds the fetched instruction to be executed.

3. The ***Memory Address (MAR)*** register is connected to the **address bus** in the CPU memory interface.

4. The ***Memory Data (MDR)*** register is connected to the **data bus** in the CPU memory interface.

5. The **Instruction Set Architecture** (ISA) of a computer consists of ***Instruction Set***, ***Memory***, and ***Programmer-accessible registers***.

6. The size of the **address bus** in the **8086** processor is ***20*** bits while in the **Pentium IV** Processor it is ***36*** bits.

7. The size of the **data bus** in the **8086** processor is ***16*** bits while in the **Pentium IV** Processor it is ***64*** bits.

8. **Reading an instruction** from Memory is performed in the ***Fetch*** phase.

9. **Reading operands** from Memory is performed in the ***Execute*** phase.

10. **Incrementing the Instruction Pointer** is performed in the ***Fetch*** phase.

11. **Decoding an instruction** is performed in the ***Execute*** phase.

12. With an **address bus size** equal to **36 bits**, the memory address space is ***64G*** Bytes.

13. With a **data bus size** equal to **64 bits**, the maximum number of bytes that is transferred between the CPU and memory per a read/write cycle is ***8*** Bytes.

14. After reading an instruction whose size is **32 bits**, the **instruction pointer** is incremented by ***4***

15. The CPU is divided into two main units called ***Control Unit*** and ***Data Path Unit***

16. Two of the reasons for why it is important to program in Assembly Language are ***it gives us full control of the machine resources which allows us to do things that could not be done with high-level languages*** and ***for writing very efficient code for certain functions***.

17. The **Cache memory** is faster than the ***RAM*** and slower than the ***Registers***.

18. The program that translates assembly language into machine language is called ***Assembler***.

19. There is a one-to-one mapping between assembly language and ***machine language***.

20. ***High-level language*** is portable while ***assembly language*** is not portable.