

Name: KEY

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COE 205, Term 031
Computer Organization & Assembly Programming

Quiz# 1

Date: Tuesday, Sep. 23, 2003

Q1. Explain the function of each of the following:

i. Instruction Pointer (IP).

The Instruction Pointer is a register that holds the address of the next instruction to be fetched from memory.

ii. Instruction Register (IR).

The Instruction Register is a register that is used to store temporarily the fetched instruction for execution.

iii. Assembler.

The Assembler is a program that translates from assembly language to machine language.

iv. Memory Address Register (MAR).

The Memory Address Register is a register in the CPU connected to the address bus in the CPU-Memory interface. It is used to store the address to be read from or written to.

Q2. Describe what is meant by the Instruction Set Architecture (ISA) of a computer.

The Instruction Set Architecture (ISA) of a computer is the collection of assembly/machine instruction set of the machine and the machine resources (memory and programmer-accessible registers) that can be managed with these instructions.

Q3. Which of the following 8086 registers is part of the ISA: **Instruction Pointer (IP), Instruction Register (IR), Memory Address Register (MAR), AX, SP.**

The following 8086 registers are part of the ISA: Instruction Pointer (IP), AX, SP.

Q4. Determine the machine type and the size of the address bus and the data bus for the 8086 and the Pentium processors.

Processor	Machine Type	Address Bus	Data Bus
8086	16-bit	20 bit	16 bit
Pentium	32-bit	32 bit	64 bit

Q5. Determine whether the following operations are performed in the fetch or execute phase: **Reading an instruction from Memory, Reading Operands from Memory, Decoding an Instruction, Incrementing the Instruction Pointer.**

Operation	Phase
Reading an instruction from Memory	Fetch phase
Reading Operands from Memory	Execute phase
Decoding an Instruction	Execute phase
Incrementing the Instruction Pointer	Fetch phase

Q6. Order the following storage devices once in terms of speed and once in terms of capacity: RAM, Registers, Tape, Hard Disk, and Cache.

The order from fastest to slowest is: Registers, Cache, RAM, Hard Disk, Tape.

The order from lowest capacity to highest is: Registers, Cache, RAM, Hard Disk, Tape.