



ENCS2380- Computer Organization and Microprocessor

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Quiz #2 Key Solution

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Student Name: Student ID:

Quiz Time: 15 minutes

Question #1 (6 Points): Choose the correct answer, and write the letter in the table below

1.	2.	3.	4.	5.
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1. The CPU register that contains the address of the next instruction to be fetched

- A. Instruction Register B. Memory Address Register C. **Program Counter** D. Memory Buffer Register

2. An example of a program interrupt:

- A. Attempt to execute an illegal machine instruction B. Arithmetic overflow C. Division by zero D. **All of the above**

3. Processor checks for interrupts during the instruction execute stage (If false, please correct)

- A. True B. **False**

Checking for interrupts is after the last stage of instruction execution

4. Address bus width determines the maximum memory capacity of a system (If false, please correct)

- A. **True** B. False

5. CPU internal bus, registers, and ALU are part of the control path of the CPU (If false, please correct)

- A. True B. **False**

They are part of the data path.

Question #2

a. (2 Points): Clearly list the stages, in order, of an instruction execution cycle you studied

- **Instruction fetch**
- **Instruction decode**
- **Operand address calculation**
- **Operand fetch**
- **Data operation**
- **Operand address calculation**
- **Operand store**
- **Check for interrupts and serve interrupts, if any.**

b. (2 Points): Briefly and clearly, list the sequence of events in fetching an instruction from memory to the CPU.

PC → MAR

Update PC

Memory [MAR] → MBR

MBR → IR

Good Luck!