# Homework 1 Processor components

1. A processor contains the Arithmetic Logic Unit (ALU) and the Control Unit.   
   1. Describe the role of the the Control Unit. [2]

To control the flow and regulation of data and instructions. It fetches and decodes instructions.

* 1. Name five registers used in the Fetch-Execute cycle.

Program counter

Memory address register

Memory data register

Current instruction register

Accumulator [5]

State how each of them is used within this cycle. [5]

Program counter holds the memory address of the next instruction to be executed. It is incremented each time an instruction has been fetched

Memory dadress register stores the memory address of the instruction or data. It is used to search for the instruction in the memory. It is the value of the last value program counter was pointing to.

Memory data register stores the actual instruction that was fetched from memory, or data retrieved from memory. This is so that the instruction can be copied into current instruction register so it can be decoded and held to see what needs to be done since MDR will change.

Current instruction register holds the current instruction that is going to be run. The instruction is decoded here into opcode (the action to be done) and operand (the memory address of data / instruction to be done)

Accumulator is a super-fast memory that temporarily stores the results after execution of an instruction before it Is written or store back into memory.

[Total 12 marks]