Exercise sheet 1

Deadline: Tuesday 11 October, 12 noon in pigeonhole

1. Which of the following hardware instructions should be allowed only in supervisor mode? Justify your answer.

   - Set value of timer
   - Read the clock
   - Clear memory
   - Turn off interrupts
   - Switch from user to supervisor mode

2. An alternative to processing of I/O via interrupts is the so-called *busy waiting*, where the process executes a loop until the I/O-operation is finished. Why do interrupts yield a better performance?

3. Describe the effects on response time and scheduling policy if a process is never forced to release the processor, i.e. it gives up the processor only for interrupts and when it decides to do so.

4. Assume a computer has more than one processor. Is it possible for kernel code to achieve mutual exclusion by disabling interrupts? Justify your answer.