Computer Structure - Spring 2008

Assignment No. 1

Firm Deadline: 20.5.08 – 10 AM before the beginning of the lecture

1. Answer Question 2.3 from the lecture notes.
2. Answer Question 2.4 from the lecture notes.
3. Answer Question 2.5 from the lecture notes.
4. **Definition:**
   A Boolean function $f:\{0,1\}^n \to \{0,1\}$ is *monotone* if $x \geq y \to f(x) \geq f(y)$ (where $x \geq y$ means $\forall i: x_i \geq y_i$).

   Prove the following claim:
   $f:\{0,1\}^n \to \{0,1\}$ is *monotone* ***iff*** f can be implemented by a combinational circuit that contains only **AND-gates** and **OR-gates**.