This quiz covers one of the problems from homework #5.
Good Luck!
In problem 6.26, you were asked to consider a pipeline which does not support a delayed branch. Figure 6.51 from one of the printings of the book is reproduced on the previous page.

1. In this datapath, how many instructions must be “flushed” out of the pipeline when a branch is taken? Explain.

2. What must be in the “Control” oval in order to support flushing (i.e. when does it decide to assert IF.Flush)? What exactly does the “IF.Flush” signal do?

3. Consider the following instruction sequence:

   ```
   sub $2, $4, $5
   beq $2, $3, somewhere
   ```

   Why doesn’t this code sequence work properly on this hardware (this is a bug in the book!)?

4. Can you fix this problem without increasing the number of instructions flushed on a taken branch? If so, how? If not, why not? You can use space on the back of this sheet if necessary.