INEL 4206. Final Exam, Take home problems. Problem 4
Due on May 9, 2013, 11:30 AM

NAME:

Section:

RULES:

1. Pages must be numbered. You must write your name and section at the top of each page.
2. You must write with blue or blank ink. No pencil, and no computer generated text, except if absolutely necessary.
3. Use both sides of sheet of paper or else use recycled paper.
4. Staple your sheets. NO loose sheets.
5. This sheet of paper should be rendered too. Keep a copy of what you rendered and also keep all your work available for discussion or happy hour, if necessary.
6. The professor may ask the student to answer oral questions about the problem.

ON THE SOURCE PROGRAMS:

7. Programs should be handled in hard copy (handwritten with blue or black ink, no pencil) AND sent by email as *.asm files. The handwritten copy may omit the general documentation section (but not comments to instructions).
8. Undocumented or ill documented programs are not valid and result in 0 for the whole problem.
9. The first two lines of the source program should be the student's name and student number ID (not Random ID).
10. The following lines should state the problem and explain how can the user introduce data and verify the correctness of the program.
11. The program file should be named as XXYYZZ_ProbW.asm, where XX are the first two letters of your paternal last name, YY those of your maternal last name, ZZ those of your name and W the number of the problem. (For example, in my case PAGARO_Prob1.asm)
12. Send your program by email to rogelio.palomera@upr.edu. The subject should say "Final Exam: Problem X", where X is the number of the program.

ON THE PHOTOGRAPHS.

13. Any photograph that you take must include something that can be used to identify that it is yours.
14. You should send the image by email and also print one copy to attach to your package delivered in hard copy form.

Problem 4: This problem uses the two diodes in the launchpad.

1. Put both LEDs to flash together at a frequency of ≈2 Hz.
2. At each push –and release– of the push-button connected to P1.3, you increment the Red LED frequency in such a way that it toggles 2, 3, 4 and 5 times faster than the Green LED. That is,
   - They start together
   - One push and the RED LED turns on and off when the GREEN LED is on, and turns on and off when the GREEN LED is off.
   - Another push and the RED LED turns on and off three times for one ON and off of the GREEN LED
   - Another push, and the number becomes four
   - Another and the number becomes five.
3. After that, the cycle starts again

You must present a flowchart of the program. The comments for the instructions MUST MAKE CLEAR WHICH STEP IN THE FLOWCHART IS BEING EXECUTED.