

SURNAME: _____ NAME: _____

DIRECTIONS FOR THE EXAM

User: EC001, psw: labec

First of all, **check that your Raspberry works** by using the Full_test.s program.

Then, download all the files that you want to use from your pendrive to the hard disc (after 5 minutes, no any further download will be permitted). Mobile phone is also prohibited for the exam.

After this, you can start with the exam. Create your programs in the folder d:/EC/RBPi

You have to make two independent programs. The name of the first one is your initials followed by 1 (first program) and followed by 2 for the second program. For example, if your name is Juan Lopez Gomez, the name will be jlg1.s and jlg2.s. At the end of the exam, upload both programs to the virtual campus.

Once you finish the first exercise, please call me to assess your program (the same for the second program).

EXAM:

- 1) (First program) Write a program that performs the following tasks (up to 4 points):
 - a. Initially, turn on all leds (1 pt)
 - b. After pressing button 1, the leds will turn off in turns starting by the led on GPIO 9 (red led) every 200 ms. (+2 pts).
 - c. Then (when all leds turn off), emit a sound of 1 KHz (+1 pts)
- 2) (Second program) Write a program that performs the following tasks (up to 4 points):
 - a. A sound of 5 kHz will be emitted for just one second (1 pt)
 - b. After this, a sound of 2500 Hz will be emitted for 2 seconds and then a sound of 500 Hz will be emitted for three seconds, and repeat this sequence forever (5KHz-1s., 2500Hz-2s., 500Hz-3s.) (+1 pts)

Do one of these two options:

 - c. Implement one of the next two options (different points for both)
 - i. If any button is pressed AT ANY TIME, then all leds will turn on just at that time (+1) and the sound keeps as usual (+ 1 pt)
 - ii. If the left button 1 is pressed at AT ANY TIME, then the three most left leds will turn on just at that time, whereas if the right button is pressed, the three most right leds will turn on just at that time. In both cases, the sequence of sounds will keep unchanged (+2 pts).

When you finish, your programs to the virtual campus. The name of each program is your initials1.s and your initial2.s. For example, if you name is Juan Lopez Gomez, the name will be jlg1.s and jlg2.s

Note: to get the maximum grade (8 points), you have to use interrupts at least once in one of the programs