TIMER_LCD_TMR0 LAB 11 CONTROL SHEET

Date: _____

Group: G ____

Student names: _____

_____

_____

PART A: Paper work and computer activities (Check ✓ if done)

	#1. Specifications: symbol, timing diagram, state diagram, etc. Note: important question to study for exam exercises.
	#2. Planning: dedicated processor adaptation to µC. Note: important question to study for exam exercises.
	#3 & **#4**. Develop & test/debug MPLAB X + XC8 project. Generate the executable *coff* file for running Proteus. Use breakpoints and watch window to control the program flow and visualise RAM variables.
	Measurements. Use the Proteus logic analyser to measure *TP* (Remember to change colours to print using a white background).

	#5. Prototype: Install the WaveForms software driver in one of your computers for the VB8012. Note: You can check its operation using it in demo mode.

PARTB: Lab workbench activities (Check ✓ if done)

The key idea on lab experimentation: From your experiences in LAB10: ➔ Please focus on group cooperation and use pen & paper to draw pictures, diagrams and sketches to prepare and document lab activities.

Experiment #1 µC programming		Change the options in MPLABX to generate the executables *hex* and *elf* files for programming the PIC18F46K22 using the MPLAB SNAP (to program the device you must follow the same LAB10 indications from Fig. 19 to Fig. 23). Check that the circuit is working.

Experiment #3 Mounting the breadboard and measuring (*)		Step #1: short wires and test as shown in Fig. 14.
		Test that it works correctly (Fig 15).
		Step #2: flexible long wires (Fig. 16).
		Plug the LCD and the flat cable adaptor to check that it works correctly with the LCD displaying text messages (Fig 17).
		Step #3: Connect the instrument probes to the male header pins and run WaveForms app (Fig. 18).
		Load and use se the VB8012 setup file for the logic analyser instrument for an easy initial probe configuration.
		Run the logic analyser instrument; capture and watch the signals when triggering the timer. Test that it works (Fig. 19).
		Try different timing periods reprogramming the chip (Fig. 20).
		Measure the timing precision of the circuit.

(*) Capture your PC screen for the purpose of documenting your experiment.

(**) Experiment #2 is optional on learning to use the SNAP in-circuit debugger.

Additional notes: