# **­Applied Acoustics – 05 July 2019**

Name & Surname:

E

D

C

B

A

F

Matricula:

**Exercise 1 (tolerance +/- 1 dBA)**

During a day work of 6+F/4 h a worker is inside a factory with a steady background noise level of 75+E dB(A). During this period, a number N = 60+E events occur, each producing a SEL of 90+D dB(A). Compute:

* Leq dB(A) (3 points)
* Total SEL dB(A) (3 points)
* Lep dB(A) (4 points)

**Exercise 2 (tolerance +/- 1 dB)**

A sample of unknown absorption coefficient is placed at the end of a standing wave tube. At the opposite end, a loudspeaker generates a pure tone at 1000 Hz. The following values are measured moving the microphone along the tube: Lp,max = 88+F/5 dB, Lp,min = 81+E/4 dB. Compute the following unknown quantities:

* Absorption coeff. of the sample  dB (4 points)
* SPLincident dB (3 points)
* SPLreflected dB (3 points)

**Exercise 3 (tolerance +/- 1 dB)**

A noise screen is required for reducing the noise generated by a sound source. The distance between source and receiver is 10+F m, and the screen is at 3m from the source, with an effective height of 2+E/5 m. If the dominant frequency of the source is 500 Hz, compute:

* Fresnel number N (3 points)
* Noise reduction for a point source dB (3 points)
* Noise reduction for a line source dB (4 points)