# **­Applied Acoustics – 01 July 2016**

Name & Surname:

E

D

C

B

A

F

Matricula:

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

Along a railway the traffic during day is 90+F trains. Each train is composed of 5+E waggons. It is known that the SEL due to the transit of one train of 10 waggons is 95+D dB(A) at 7.5m. Compute:

* SEL of one waggon at 7.5m dB(A) (3 points)
* Total SEL at 7.5m dB(A) (3 points)
* Leq,day at 100m 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. Inside the pipe the following min and max SPL values are measured: Lmin = 78+F/10 dB, Lmax=81+E/10 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 chiller. The required reduction is 5+F dB at 400 Hz. The distance between source and receiver is 10+F m, and the screen is in the middle. Compute:

* Fresnel number N (3 points)
* Height of the screen dB (3 points)
* Noise reduction at 1000 Hz dB (4 points)