# **Applied Acoustics – 23 September 2016**

Name & Surname:

E

D

C

B

A

F

Date of Birth:

**Exercise 1 (tolerance +/- 0.5 dB)**

Inside a standing wave tube an intensimetric measurement is performed, and the following values are found: Energy Density Level is equal to 80+F/2 dB, Sound Intensity Level is equal to 75+E/2 dB.  
Compute the absorption coefficient of the material placed at the end of the tube and the maximum value of the Sound Pressure Level, occurring in points where the incident and reflected waves are in phase.

* Absorption Coefficient **** (10 points)
* SPL max dB (5 points)

**Exercise 2 (tolerance +/- 0.5 dB)**

R

C+10

S

F/10+1

10+E

An omnidirectional point source, radiating incoherent noise, is located outdoors, above the partially absorbing ground (α=0.3+F/50), at an height of B/10+1 m. The Sound Power Level Lw is equal to 100+D dB.

A microphone is located at an horizontal distance of 10+E m, and at an height of C+10 m above the partially absorbing ground.

Determine the following values of the SPL at the microphone.

* Direct Sound SPL dB (5 points)
* Reflected Sound SPL dB (5 points)
* Total SPL dB (5 points)