**Applied Acoustics - 21/12/2018 In-class test - Lecturer: Angelo Farina**

Note: some input data are based on the 6 digits of Matricula number, assigned to the 6 letters A B C D E F.

If for example the Matricula is 123456, it means that A=1, B=2, C=3, etc. . Furthermore EF=56 (NOT 5x6).

Top of Form

**Surname and Name   
+ signature**

F

E

D

C

B

A

**Matricula**

**1) Compute the value of Lep at the end of a work day, during which the SPL was 75+F dB(A) for 4+D/2 hours and 82+E/2 dB(A) for 1+E/5 hours**

*Write number and measurement unit (with a space in between and no other spaces)*

**2) Inside a room having a volume V=300+D\*20 m³, a reverberation time T1 of 3+F/10s is measured. A number of sound absorbing baffles are added under the ceiling, causing the reverberation time to drop to T2=1+D/10 s.**

**Compute the total absorption area of one baffle, knowing their number N=10+E.**

*Write number and measurement unit (with a space in between and no other spaces)*

**3) In a standing wave tube a pure tone at 1000 Hz is generated. The maximum value of SPL is 80+F dB and the minimum value is 70+E dB. Compute the sound absorption coefficient α of the sample according to ISO 10534.**

*write number and measurement unit (with a space in between and no other spaces)*

**4) A sound intensity probe is placed in front of an absorbing surface. The Sound Intensity Level in the 1 kHz octave band is 75+F/2 dB, while the Energy Density Level is 80+E/2 dB. Compute the sound absorption coefficient α of the sample with the Sound Intensity method.**

*write number and measurement unit (with a space in between and no other spaces)*

**5) A truck passage was recorded, with a total duration of 70+F s and an Leq = 65+E dB(A). Compute the value of SEL**

*Write number and measurement unit (with a space in between and no other spaces)*

**6) After a 24h measurement of environmental noise, the following three values are found: LA,eq,day = 60+F dB(A), LA,eq,evening = 60+E/2 dB(A), LA,eq,night = 55+D/2 dB(A). Compute the value of LDEN.**

*Write number and measurement unit (with a space in between and no other spaces)*

**7) What's the decay rate with distance for a point-like source ?**  *(one answer only)*

* 3 dB / octave
* 6 dB / meter
* 6 dB / doubling distance
* 3 dB / doubling distance
* DL2 = 3 dB

**8) What's the decay rate with distance for a line source ?**  *(one answer only)*

* 3 dB / octave
* 6 dB / meter
* 6 dB / doubling distance
* 3 dB / doubling distance
* DL2 = 3 dB