**Applied Acoustics - 09/11/2018 In-class test - Lecturer: Angelo Farina**

Note: some input date 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 CD=34 (NOT 3x4), DE =45, EF =56.

**Warning: On-line compilation of this form warrants TWO additional score points.**

Top of Form

**Surname and Name**

F

E

D

C

B

A

**Matricula**

**Given that at 10m from a point source in free field you have an SPL=80 dB, at which distance do you get an SPL =70 dB ?** *one answer only, mandatory*

* 20 m
* 31.5 m
* 40 m
* 80 m
* 100 m

**Given that at 10 m from a line source in free field you have an SPL=80 dB, at which distance do you get an SPL =70 dB ?** *one answer only, mandatory*

* 20 m
* 31.5 m
* 40 m
* 80 m
* 100 m

**Select only the correct statements:** *multiple answers allowed*

* SPL (sound pressure level) is always equal to PVL (particle velocity level)
* SPL is larger than PVL near a wall, instead SPL is smaller than PVL near a sound source
* SIL (Sound Intensity Level ) can only be smaller or equal of EDL (Energy Density Level)
* In a plane, progressive wave SPL=PVL=SIL=EDL
* In the nearfield of a point source, SPL<PVL and SIL<EDL
* The power level Lw of a sound source is always larger then the sound pressure level

**What of the following functions are ALWAYS included in a Sound Level Meter?** *multiple answers allowed*

* selector of the measurement range for accommodating weak or loud SPL values
* A-weighting filter
* LIN filter (no weighting)
* Octave or 1/3 octave band filters for spectrum analysis
* Fast/Slow time constants
* Digital interface (USB, etc.) for connecting a computer

**A point source is located outdoors, over a reflecting plane, and has a power of 0.1+F/100 W. Compute the value of SPL (unweighted) at a distance of 10+D meters**

*write number and measurement unit*

**The same source of previous exercise is placed inside a reverberant room, having a volume V=200+E\*10 m³ and a reverberation time T=2+C/5 s. Compute the average value of SPL inside the room, far from the source.**

*write number and measurement unit*

**If the source of previous exercise is placed on the reflecting floor inside the reverberant room, compute the SPL close to the source, at a distance of 0.5+F/10m.**

*write number and measurement unit*

**The noise inside a room is analysed in octave bands and results to be substantially pink (flat). If the SPL in each of the 10 octave bands (31.5 Hz to 16 kHz) is equal to 70+E dB, compute the total A-weighted SPL**

*write number and measurement unit*

*Scores: +1 for each correct answer, -1 for each wrong answer, 0 for no answer*