**Applied Acoustics - 09/10/2023 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.

Top of Form

**Surname and Name**

F

E

D

C

B

A

**Matricula**

**Check the sentences you think are TRUE**  (multiple answers allowed)

* The values of the levels in dB of sound pressure, particle velocity, sound intensity and sound energy density are always equal
* The sound intensity level is always smaller or equal than the sound energy density level
* The sound speed in air is constant (340 m/s)
* The sound speed in air is proportional to the temperature
* The sound speed in air is proportional to the square root of temperature
* The sound speed in solids depends on their elastic modulus and density
* The sound speed depends on the sound level and frequency

**When the sound pressure is doubled, what happens?**  (multiple answers allowed)

* The value of the sound power (in W) doubles
* The value of the sound power level increases by 3 dB
* The value of the sound power level increases by 6 dB
* The sound pressure level increases by 3 dB
* The sound pressure level increases by 6 dB

**What's the minimum SPL which can be heard at 100 Hz according to ISO 226-2003?** (a single answer)

* 0 dB
* 10 dB
* 20 dB
* 25 dB
* 30 dB
* 40 dB

**What's the sound pressure corresponding to an SPL of 100+E dB ?** (write number and measurement unit)

**Compute the SPL corresponding to a sound pressure of 3+F Pa**  (write number and measurement unit)

**Compute the (incoherent) sum of the sound pressure level**

**of 80+E dB and 78+D dB**  (write number and measurement unit)

**The SPL of a fan is 78+F dB at 63 Hz. Convert the SPL in dB(A)**  (write number and measurement unit)

**An average sound intensity level of 60+E dB(A) is measured on a surface surrounding the source having an area of 10+F m2. Compute the power level of the sound source** (write number and measurement unit)

**A plane progressive wave is propagating in air, with a SPL=80+E dB. Compute the values of sound pressure, particle velocity, sound intensity, sound energy density** (write number and measurement unit for p, v, I, D)

 p = v =

 I = D =