**Applied Acoustics - 27/11/2015 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 CD=34 (NOT 3x4).

Top of Form

**Surname and Name**

F

E

D

C

B

A

**Matricula**

1) A vehicle produces a SEL of 90+F dB(A) at 7.5m. The vehicle is passing in front of the microphone, at a distance of 10+E m, and the measurement time is 30+DE s. Compute the value of LA,eq.

*write number and measurement unit*

2) The power level Lw of a SUV running at 40+E km/h is equal to 90+F dB(A). Compute the maximum instantaneous sound pressure level at a receiver located at distance of 30+E m from the road.

*write number and measurement unit*

3) In the case of previous exercise, compute the Leq at the receiver when each hour 300+CD SUVs are passing.

*write number and measurement unit*

4) What is the SEL (at 7.5m distance) of the same SUV of previous two exercises?

*write number and measurement unit*

5) On a railway the total traffic during the whole night is of 20+C passenger trains and of 10+E freight trains. Each passenger train has a SEL (at 7.5m) = 88+D dB(A). Each freight train has a SEL (at 7.5m) = 93+F dB(A). Compute the value of LA,eq,night at a distance of 100+EF m.

*write number and measurement unit*

6) The noise inside a factory is dominated by a large pressing machine. Compute the SEL associated with a single pressing event of the machine, knowing that it is pressing 100+EF pieces per hour, and that the average Leq at the working place is 80+E dB(A).

*write number and measurement unit*

7) Inside a factory, the Leq is equal to 80+D dB(A). Compute the time allowed in this factory for a personal daily exposure Lep equal to 85 dB(A).

*write number and measurement unit*

8) Inside a factory, a man stays at three workplaces: 3+F/10 h with an SPL=80+F/2 dB(A), 1+E/10 h with an SPL=85+E/4 dB(A) and 5+D/3 h with an SPL=78+C/4 dB(A). Compute his daily personal exposure level Lep.

*write number and measurement unit*

9) In a factory the average daily exposure level Lep of workers is 86+F/4 dB(A), for a total working time of 10 h, and actions must be taken for reducing Lep to 85.0 dB(A). Compute the new max daily working time.

*write number and measurement unit*

10) A worker is operating for 8h in front of a machine, with an Leq=80+D dB(A). Compute his Lep in the case he reduces his working duration from 8h to 4+E/4 h.

*write number and measurement unit*