



You have max three (3) hours for answering the questions. You may leave after the first hour but not before. Allowed/Required accessories: pens, calculator, student card. Paper is available from the supervisors of the examination. No books, notes, laptop computers/PDAs or conversation. Turn off your mobile phone. The results may be expected to appear one month after examination on the course web pages and information board.

At the ECE-department, it is customary to gather feedback from the courses. You can send your (voluntary) feedback to the course e-mail. All feedback is appreciated!

- **Answer only to five (5) questions.** If you answer 6, only the worst five will be taken into account.
- Express yourself punctually: for engineers it is not enough to define concepts “something like that” but exactly and unambiguously.
- Answer clearly (both contentswise and handwriting): According to Murphy’s law, if an answer can be misinterpreted, it will be misinterpreted.
- Everyone has to leave a paper, even if it contained only your name and student number! Also remember to sign the participation list!

Good luck with the examination!

1. Explain the following concepts with a few words. If needed, include a mathematical formula or definition or drawing.
 - (a) vocal tract
 - (b) stapedius reflex
 - (c) resonance body
 - (d) standing wave
 - (e) crossover network
 - (f) microphone sensitivity
 - (g) loudness
 - (h) sound level
 - (i) power level
 - (j) equivalent sound level
 - (k) sound intensity
 - (l) sound power
2. Explain verbally and graphically the structure and operation of the inner ear, as well as the effects of loud and long-lasting noise on the inner ear.
(1-2 pages long, well organized answer gives the best result)
3. The basics of producing sound with a violin.
(1-2 pages long, well organized answer gives the best result)

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