

ELEC-E8712 Design for Reliability (5 cr)

2nd midterm exam 7.11.2017

1.
 - a) What is the main target for Highly Accelerated Life Testing (HALT)? (1p)
 - b) Explain shortly the main stages of typical HALT process including the determination of operational and destruction limits. (3p)
 - c) Discuss on the methods for utilizing HALT in lifetime as well as MTTF/MTBF evaluation. (1p)

2.
 - a) What are the main purposes for ALT (Accelerated life/reliability testing)? Mention at least four (4) purposes that you consider important. (2p)
 - b) Accelerated stress tests are commonly categorised as i) single parameter, ii) concurrent or iii) sequential multiparameter tests. Explain shortly the advantages and disadvantages of these tests. (2p)
 - c) What is the purpose of “Stress Screening” (HASS, ESS, Burn-In etc.)? What kind of challenges are related to defining the correct stress level? (1p)

3.
 - a) What is HAST (Highly accelerated stress test) and what are the typical HAST test conditions? (1.5p)
 - b) Explain what is “*Classification of environmental conditions*” and how it can be used in the design for reliability? (2p)
 - c) Explain **shortly** the main corrosion mechanisms in electronics. (1.5p).

NB. You can give your answers either on English or Finnish.

Essay type answers are NOT required!