SCHOOL OF ELECTRICAL ENGINEERING
Signal Theory: EQ1220 / EQ1210

Reading Assignment: Filtering, AR, and ARMA Processes (3/5) 2015–09–09,

Notice: To be collected before Lecture 6 (2015-09-16).
The essay consists of three questions. If you successfully answer all
questions, you obtain 1 bonus point for part A of the final exam. An
essay with partially correct answers will give you 1/2 point.
For the answers you should not copy text from a textbook. Group
work is also not allowed, but feel free to discuss with your fellows.
The reports will be checked against plagiarism.
Be brief, i.e., at most 1 page.

Explain (**in your own words**) . . .

1. . . . what the cross correlation between two weakly stationary stochastic discrete-time
processes is. Give also mathematical definition(s) and example(s).

2. . . . the different mathematical relations between the discrete-time input (assumed to
be weakly stationary stochastic process) and output of a LTI-system. Elaborate in
particular on the cross correlation and cross spectrum.

3. . . . the properties of BIBO-stable AR-processes. For instance, you might use figures,
numerical examples, explain your understanding of the involved rational transfer func-
tions or Yule-Walker equations, etc, to describe your understanding of the concept.