

Feedback for EEE331/6037 Session: 2011-2012

Feedback: Please write simple statements about how well students addressed the exam paper in general and each individual question in particular including common problems/mistakes and areas of concern in the boxes provided below. Increase row height if necessary.

General Comments:

The result of this year's exam was significantly worse than in previous years. There was an obvious disparity between what the lecturer expected and what the students delivered. The exam itself contained a number of new and long questions on topics quite similar to previous exam years' questions, but the wording was often chosen differently and the approximations to be made were different. This was too complex for the students, who really struggled with a lot of basic things like writing down and solving inequalities and even percentage calculations. A number of students handed in basically empty answer sheets.

Question 1:

The wording of questions was all new, however, Q1a-c were deemed rather straight-forward. Q1a was a simple question on EF and CE circuits similar to ones in previous years, Q1b requested three simple mathematical approximations that could have been performed without any knowledge of electronics at all, Q1c was an extension from the first years' (!) BJT lab. Q1d required a mathematical deduction of the relationship between base width shrinkage and output resistance, which was similar to a previous exam question, would have been a direct expansion on the lecture material and required some thinking. No student could tackle this properly. The low score achieved by both cohorts of students was mainly due to many ignoring the questions and instead describing unrelated material and/or the student not understanding what CE/CB output/input characteristics are and what they look like for different base currents.

Question 2:

Those parts of questions that were identical to questions in previous exams (Q2a voltage gain, Q2b: current mirror output) were generally reproduced OK, those that were new (Q2a: output resistance, Q2b: temperature dependence) were either omitted or very clumsily approached by the students. Most students could not work out the absolute change of a parameter (here: small signal current gain, β) if the temperature dependence of the relative change is given and did not realize $0.49=49\%$. This hints at severe mathematical deficiencies. Q2c was new but so basic that most students answered it correctly. The overall score was still slightly below expected.

Question 3:

Q3a (i-iii) was similar to a question in 2010, part (iv) was new but simply asked for two example applications. It was answered mostly correctly. Q3b was a mixture of questions asked in 2009 and 2011 exams and as such required careful reading. This seemed to confuse students who came up with parts of the solutions but could not explain the deduction. Q3c asked to explain the functions of MOSFETs in an operational amplifier circuit not previously shown or discussed, but was mainly answered well. The overall score was OK, but then this question was tackled only by a minority of students; presumably the unknown circuit layout deterred many from attempting this question.

Question 4:

Q4a was a new exam question but very similar to an exercise in lecture 7 that was dwelled on in detail. Only two students answered it mostly correctly. Q4b on Chebychev filters was also a new exam question but a basic one treated in detail at the end of lecture 9. Q4c was similar to previous exam questions but with a slight twist due to the offset in the numerator that promptly confused most students. Nobody had the idea of e.g. putting in some values for the interval $0 < s < 100$ to see what the curve would look like here, or tried to estimate the dip in the curve. The overall score was again very low.