

Examination Feedback for EEE6040 – High Speed Electronic Devices
Spring Semester 2009-10

Feedback for EEE/6040 Session: 2009-2010

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 overall performance was very mixed, with few good scores, and quite a lot of very poor scores. Many students struggled to show a basic understanding of the subject, which may need to be addressed in the future through additional lectures. Candidates mainly did questions 1, 2 and 3. Very few students answered Q4. There were many signs of M.Sc students running out of time and spending far too much time on questions 1 and 2

Question 1:

Students did generally very well with the diagrams in a) and b). Some weak discussions of the pinch off condition were presented in b). Most answered c) and d) well, but there were a few with apparently good methods but with simple mistakes in the calculation

Question 2:

Quite a lot of students could not draw the diagram of the HBT. Many failed to make a really good explanation of the benefits over the BJT. Part b) was fine. In part c), some explanations were weak. Many students made a good start on part d), before running into problems in the calculation. Many seem to be confused by what should be a fairly straightforward calculation.

Question 3:

Although many students could describe the elements of CMOS scaling/Moore's law, a surprising number got this badly wrong. This needs to be highlighted in the future as a key area for revision. Part b) was answered fairly well by most, but some students just put down seemingly relevant material without any kind of thought. Most attempted c), but less than half got through to a successful answer.

Question 4:

There was an error in the value of alpha was present in b), (pointed out after the exam.) I decided to accept any of the possible answers on this. Answers provided gave the band structure of the HEMT well enough, but failed to provide really good detail on the structural and operational differences between the types of HEMT discussed.