

Feedback for EEE6008 Session: 2013-2014

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:

Most attempted questions 1, 2, 4 with half as many attempting Q3. Despite coursework being very good this year, exam question attempts were generally rather poor and varied from few very high marks to some with almost no marks. Since attendance at lectures dwindled to <50% in the second part of the course (especially for Monday morning lectures at 9am!) it appears that there may be a link between success in the exam and attendance and contribution in lectures.

Question 1:

A surprising number failed to equate the t_2 forces in (a). Very few listed the mechanisms by which diffusion can occur. Most failed to relate a potential solution to electromigration with consequential corrosion. (d) was answered well. Very few could justify IR over SAM in (e), and there were a surprising number of elaborate explanations of how SEM works (which did not earn marks).

Question 2:

A large number of students were able to score highly in this question (giving it the highest average score on the paper), especially in the mathematical part a. Main problems here were in plotting failure rate as a function of time.
A wide range of activation energies were accepted in workings for part (b). On the whole, part (c) was very poorly answered.

Question 3:

Little knowledge of solder joints demonstrated. Ball bonds described instead of solder joints and almost no one recalled an expression for shear strain in solder joints, resulting in poor answers as to how to reduce it.
A large number suggested using InP (a brittle semiconductor) as a submount for high power GaAs lasers, and very few could describe a scheme for flip-chip bonding and therefore found it hard to describe possible defects resulting from the metallisation scheme.

Question 4:

Few could describe ionization in MOSFETs due to irradiation, but were better equipped to describe the effect in optical fibres. Some did not know which environments are particularly hazardous in terms of radiation. Very few could describe COD in laser diodes and therefore how to prevent it.