Examination Feedback for EEE207 – Semiconductors for Electronics
Spring Semester 2008-09

Feedback for EEE207 Session:2008-2009

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:

This paper proved to be more difficult than in previous years, however a close inspection shows that it is essentially identical to what has come out before. Students should see the worked solutions, where detailed comments on each section are provided.

Question 1:

(a) & (b) are very straightforward. (c)i requires you to work out the new doping and to realize that it is not changed by much. (c)ii is more complicated as you need to first obtain the value of the constant. (d) should be easy, although many people didn't get it correct.

Question 2:

The metal-p type schottky proved too difficult for many. (b) is easy if you realize that the first part is just a resistor and there is no diode there. The next bit is just a resistor in series with a diode in forward bias, but very few got this correct. Solving the equation iteratively gives the answer approximately. The last bit is very straightforward.

Question 3:

(a) seemed straightforward but many people did not start from the condition stated of an electron in a vacuum. (b) is similar to what has appeared before and requires knowing what the equation of a parabola is. (c) was generally OK except some people forgot to subtract the work function. (iii) confused people who doubled the wavelength and not the intensity. Most people got the last bit correct.

Question 4:

Very few people got (a) completely correct – it is straight from the lecture notes. (b) requires you to work out how many electrons there are in 10nA, and to equate that to the number of photons at the different wavelengths. (c) should have been straightforward as QW's have appeared almost every year, but the fact that this was a detector rather than a LED or laser confused people. (d) is also something that has appeared in laser & LED questions previously.