

## **Feedback for EEE105 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:**

Candidates are reminded that in numerical solutions, the inclusion of units, and clear demonstration of their working out are key parts of the answer.

### **Question 1:**

This question was very popular and generally well answered. Some candidates seemed to mis-read “concentration gradient”, providing an answer for changing “concentration” only. The numerical parts were in general answered well.

### **Question 2:**

A number of candidates quoted the equation in part (b) without derivation. In part (d), whilst most candidates answered this well, some made rather bold assumptions. Many candidates failed to be able to convert the band-gap energy in eV to Joules (multiply by  $q$ ).

### **Question 3:**

This was generally well answered. For (a)(ii), a number of candidates did not include the reverse bias, or the built in potential in their calculations. (iv) caused some difficulties as it required the calculation of the energy and realization that the 1550nm light will not be absorbed at all (it's energy is less than the band-gap), while the 800nm light can be absorbed (energy greater than the band-gap).

### **Question 4:**

This question was least popular, possibly as the material was dealt with latest in the lectures, and possibly due to the 10 marks for the mathematical section. The equation (without derivation) was quoted by some candidates, losing marks. Part (d) was answered well by those candidates who attempted it, although some misused the majority carrier density in place of the minority carrier density.