Examination Feedback for EEE220 – Electric and Magnetic Fields
Autumn Semester 2010-11

Feedback for EEE220 Session: 2010-2011

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:

Overall students performed well on the paper. Questions 1, 2 and 3 were the most popular. Only a small percentage of candidates attempted Q4 but those that did generally achieved good marks.
Marks were lost for quoting formulas (actually given on hand out!) and not deriving them. Marks were also lost for not stating the assumptions made in a derivation. Numerical errors also accounted for lost marks.

Question 1:

1.
a. Answered well. Some students gave the result for a monopole
b. Generally answered well. Main error was formulating the equation for point of zero field. Some difficulties solving the resulting quadratic equation.
c. Some students did not derive the field due to a semi-circle, but quoted the result for a full ring of charge.

Question 2:

2.
a. Bookwork derivation which was generally answered well. Marks were lost for not stating assumptions made during derivation.
b. Main source of error was failure to use correct expression for capacitance of a parallel plate capacitor
c. Some marks lost due to numerical errors, but main source of error was not knowing that I=Q/T

Question 3:

3
a. Bookwork derivation which was generally answered well. Marks were lost for not stating assumptions made during derivation. The easiest way to solve this problem was by using Gauss's law. However, solutions based on integration along the wire were also valid.
b. Some candidates found the manipulation of vector a problem, particularly when calculating the distance between two points. Sketching a diagram of the problem and indicating the direction of the fields with arrows would have helped in most cases.
c. A difficult question! Many candidates failed to obtain full marks as they failed to perform the required integration.

Question 4:

4
a. A straight forward question requiring only the substitution of x=L/2
b. This question looks difficult but is actually based on a bookwork derivation. Marks were lost for incomplete derivation and failure to state assumptions.
c. Generally answered well. Main error was not realising that the field due to the square and circle are in opposite directions