Examination Feedback for EEE6011 – Antennas and Propagation
Spring Semester 2010-11

Feedback for EEE6011 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 exam average a little below expectation.

Question 1:

Good average mark and best answered question.

(a) This was bookwork and quite well answered.
(b) Most people stated that traps were parallel resonant circuits and 'cut off' the end parts of the dipole. Trap construction was mostly confused, and antenna dimensions generally did not take into account the inductive loading of the traps at the lower frequency which would shorten the overall dipole length.
(c) Capacitance calculation was straightforward, and some people got the half wave dipole input impedance at both frequencies, but none appreciated the slight reduction in radiation resistance at the lower frequency caused by the inductive loading.

Question 2:

Poor average mark and worst answered question. It was not particularly difficult but I think the segmented flared spiral diagram put people off.

(a) The actual sub-questions here are quite easy.
(b) This is a generic polarization sub-question applicable to any antenna. All that was required numerically was to substitute the given Cartesian field amplitudes and phases into the given equation for axial ratio.
(c) No one mentioned Faraday rotation here.

Question 3:

Low average mark.

(a) Bookwork generally.
(b) Calculation based on previous derivations. Zero relative permittivity at the critical frequency caught some people out.
(c) Just needed a statement referring to a host for charge carriers other than metal.

Question 4:

Quite low average mark.

(a) Generally bookwork. A diagram clearly showing all relevant ray angles was important here.
(b) No one managed to calculate the correct answer, but credit was given for realizing that the radius of curvature of the signal was negative and drawing a sensible signal propagation diagram.
(c) Most answered this reasonably, but some did not explain what a temperature inversion was, meaning that the air could get warmer or cooler with height (the former being correct under high pressure). Some implied that the fact the pressure was high would make the air more dense hence affecting the refractive index.