Examination report – June 2011 series

2730-023 Advanced radio systems

Section 1 – Areas of good performance
Syllabus reference: 1.3. The material presented was generally acceptable. However, few candidates appeared to realise that changes in temperature, air pressure and water vapour with height are dominant players in the refraction of the space wave. Syllabus reference: 1.13, 1.16, 1.19. The definition for beamwidth was well known. That for EIRP elicited only a formula from many and that for effective aperture was known by just a few candidates. Syllabus reference: 1.35. Many candidates lost marks because they failed to realise the comparison between FM and AM for the parameters given. Syllabus reference: 1.67. This question was the best answered on the paper, as it only required memorisation of a diagram. Syllabus reference: 1.81. Many candidates did not attempt the calculations for this section.
Section 2 – Areas for development
Syllabus reference: 1.22. The explanations in this section were not adequate. Many candidates do not realise that a change in frequency produces a change in phase and vice versa. Syllabus reference: 1.32, 1.46. The essence of the answer centred around the fact that image channel and adjacent channel rejection require a high value for the one and a low value for the other. GPRS was fairly well done. Syllabus reference: 1.75. This section had the poorest response on the paper. The results were far from satisfactory. Syllabus reference: 1.55, 1.56. Some managed correct answers: Channelisation codes, being orthogal requires zero cross correlation but scrambling codes require zero autocorrelation. Few candidates mentioned the subject of synchronisation, an essential requirement in the need for scrambling codes. Syllabus reference: 1.96. This was a question that suffered from lack of detail in the answers.
Section 3 – Recommendations
• Not enough careful reading of questions and lack of detail lost candidates marks.