Examination report – December 2014 series

2730-027 Advanced Mathematics 2

Section 1 – Areas of good performance
Syllabus reference: 1.1 / 1.2 / 1.6 – Further calculus. Differentiating a product was achieved by some. Syllabus reference: 1.2 / 1.11 – Further calculus. Some marks were obtained for further differentiation of product. Syllabus reference: 1.27 / 1.28 / 1.30 – Determinants and matrices and their use in solving simultaneous equations. Most candidates obtained good marks for matrix subtraction and multiplication. Syllabus reference: 1.23 – Subdivide a compound expression into its partial fractions in the three distinct denominator cases of linear, repeated linear and non-factorisable quadratic. Some attempt was made with converting fractions into partial fractions. Syllabus reference: 1.24 / 1.37 / 1.38 – Determinants and matrices and their use in solving simultaneous equations. Laplace transforms and their use in solving differential equations. Determining Laplace transforms was reasonably well understood. Evaluating a 3 by 3 determinant was well attempted.
Section 2 – Areas for development
Syllabus reference: 1.1 / 1.2 / 1.6 – Further calculus. Differentiating a quotient proved a little problematical for most candidates. Integration was poorly attempted by most candidates. Syllabus reference: 1.40 / 1.41 / 1.42 – Laplace transforms and their use in solving differential equations. Some attempt was made to determine inverse Laplace transforms but the partial fraction proved difficult for most candidates. Syllabus reference: 1.2 / 1.11 – Further calculus. There was little attempt to use Maclaurin's series. Syllabus reference: 1.43 / 1.44 / 1.45 / 1.46 – Laplace transforms and their use in solving differential equations. Solving a differential equation using Laplace transforms was poorly attempted. Syllabus reference: 1.32 / 1.33 / 1.34 / 1.35 – Determinants and matrices and their use in solving simultaneous equations. Few marks were obtained by candidates solving simultaneous equations using matrices. Syllabus reference: 1.18 / 1.21 – Further complex numbers. Powers and roots of complex numbers proved difficult for many candidates. Syllabus reference: 1.24 / 1.37 / 1.38 - Determinants and matrices and their use in solving simultaneous equations. Laplace transforms and their use in solving differential equations. Proving a Laplace transform was difficult for most candidates. Syllabus reference: 1.15 / 1.17 – Series.

Sum of geometric progression was not well understood by most candidates. Using the binomial expansion with negative power was difficult for many candidates.