



C50 Enumerative & Asymptotic Combinatorics

Examination information

Spring 2003

The topics which will be covered in the examination are those listed in the syllabus:

- (a) Techniques: Inclusion-exclusion, recurrence relations and generating functions.
- (b) Subsets, partitions, permutations: binomial coefficients; partition, Bell, and Stirling numbers; derangements. q -analogues: Gaussian coefficients, q -binomial theorem.
- (c) Linear recurrence relations with constant coefficients.
- (d) Counting up to group action: Orbit-counting lemma, cycle index theorem.
- (e) Posets and Möbius inversion, Möbius function of projective space.
- (f) Asymptotic techniques: Order notation: O , o , \sim . Stirling's formula. Techniques from complex analysis including Hayman's Theorem.

The examination will be a mixture of bookwork and problems. The problems will be similar to those set on the course problem sheets.

The rubric for the examination will be as follows:

You may attempt as many questions as you wish and all questions carry equal marks. Except for the award of a bare pass, only the best FOUR questions answered will be counted.

Calculators are NOT permitted in this examination. The unauthorised use of a calculator constitutes an examination offence.