

Final Exam

Discrete Mathematics III, Spring 2014
Junior Prof. Juanjo Rué

Name and Signature:

Problem 1 (5 points): Pick between one of these two topics. You will have 15 minutes to explain the most important points and receive questions from the examiners.

- a.- Multivariate generating functions and discrete probability distributions. Computations.
- b.- The Dissymmetry Theorem for trees.

Problem 2 (4 points): Develop the most important ideas in the following problem from homework. You will have 10 minutes to explain the most important points

Alignments: An *alignment* is an ordered sequence of labelled cycles. Explain the combinatorial specification for this family, and find the corresponding EGF. Get directly from the previous expression the exponential order of the sequence counting alignments.

Problem 3 (1 point): Is it possible to get, by means of the Transference Theorem, an asymptotic estimate whose subexponential growth is n^{-1} ?

- You have 30 minutes to prepare the answers and organize yourself.
- The preliminary grading of the subject will be available the 22nd July (evening) both in the webpage and in my office.
- You can come to my office on Wednesday 23th July from 09:00 to 11:00 to discuss the grading.