Politecnico di Milano

Dipartimento di Elettronica, Informazione e Bioingegneria

prof. Fabrizio Ferrandi

Advanced Algorithms and Parallel Programming 1st part (Advanced Algorithms)–September 7th 2022

Polimi ID _____ _____

Surname _____ _____ **Name** _____

- This is a closed-book examination. You cannot use computers, phones or laptops during the exam.
- Paper will be provided, but you should bring and use writing instruments that yield marks dark enough to be read easily. Erasable pens can be used.
- Total available time: 1h:00m.

Exercise 1 (6 points) _____

Exercise 2 (5 points) _____

Exercise 3 (5 points) _____

Exercise n. 1

Describe the Karger and Stein Min-Cut Algorithm. How is the complexity of this algorithm computed? Which is the randomization class the algorithm belongs to?

Exercise n. 2

Discuss an example of dynamic programming based algorithm. Which are the key features of an algorithm for being classified as a dynamic programming algorithm?

Exercise n. 3

Describe how Treap **split/union** works.