

Last name	
First name	
Group	

Grade	
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Algorithmics
Undergraduate 1st year S1
Final Exam #1 (P1)
7 January 2020 - 13h-15h
Answer Sheets

1	
2	
3	
4	
5	
6	

Answers 1 (Abstract Types: Iterative lists (delete) – 3 points)

1. Possible preconditions: _____

2. Axioms of the operation *delete*:

Answers 2 (Binary Search: search "path" – 2 points)

	NO	YES
46 - 65 - 81 - 73 - 70 - 66		
31 - 62 - 90 - 72 - 61 - 66		
36 - 70 - 53 - 40 - 42 - 66		
35 - 51 - 55 - 58 - 61 - 66		

Answers 5 (Histogram and sort – 4 points)

- The function `hist(L)` returns the list that represents the histogram of the values in L (L contains only digits):

- The function `sort(L)` returns the list L sorted in increasing order (L contains only digits):

Answers 6 (Kaprekar – 5 points)

The function $\text{Kaprekar}(n, p)$ performs the Kaprekar routine to the positive p -digit integer n , till it reaches the same value twice. It returns the list of the computed values.

A large empty grid for writing answers, consisting of 20 columns and 30 rows.