

Last name	
First name	
Group	

Grade	
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Algorithmics
Undergraduate 1st year (S2)
Final Exam #2 (P2)
29 May 2017 - 13h45
Answer Sheets

1	
2	
3	
4	

Answers 1 (2-4 trees ... – 6 points)

1. Final 2-4 tree corresponding to successive insertions of values $\{Q, U, E, S, T, I, O, N, B, A, Z, Y, K\}$:

2. Red-black tree associated with the 2-4 tree of the previous question:

3. Three properties of a 2-4 tree:

(a) _____

(b) _____

(c) _____

4. Three properties of a Red-black tree:

(a) _____

(b) _____

(c) _____

5. The *simple method*, using the red-black tree that represents it, allows one to determine the size of a 2-4 tree:

Answers 2 (Trees and mystery – 3 points)

1. Tree built by *makeTree(13)*:

2. Properties of the tree built by *makeTree(n)* ($n > 0$):

(a) _____

(b) _____

Answers 4 (AA Trees – 5 points)

1. AA tree obtained after insertion of 4 in the tree in figure 6.



