

ESERCIZIO 7

- (a) ASSOCIA $A[i]$ LA RADICE E $A[3i-1], A[3i], A[3i+1]$ i figli
- (b) INSERIMENTO(A, k)
- $$\text{HEAP-SIZE}[A] \leftarrow \text{HEAP-SIZE}[A] + 1$$
- $$A[\text{HEAP-SIZE}[A]] \leftarrow k$$
- WHILE $i > 1$ AND $A[\text{PARENT}(i)] > A[i]$
- DO $\text{swap}(A[i] \leftrightarrow A[\text{PARENT}(i)])$
- $i \leftarrow \text{PARENT}(i)$

ESTRAI MIN(A)

return $A[1]$

$A[1] \leftarrow A[\text{HEAP-SIZE}(A)]$

$\text{HEAP-SIZE}(A) \leftarrow \text{HEAP-SIZE}(A) - 1$

MIN-HEAPIFY($A, 1$)

MIN-HEAPIFY(A, i)

$\pi \leftarrow \text{right}(i)$ $e \leftarrow \text{center}(i)$ $l \leftarrow \text{left}(i)$

if $\pi \leq \text{HEAP-SIZE}(A)$ AND $A[\pi] < A[i]$

$\text{min} = \pi$

else $\text{min} = i$

if $e \leq \text{HEAP-SIZE}(A)$ AND $A[e] < A[\text{min}]$

$\text{min} = e$

if $l \leq \text{HEAP-SIZE}(A)$ AND $A[l] < A[\text{min}]$

$\text{min} = l$

if $\text{min} \neq i$ then

 SCAMBIA $A[i]$ con $A[\text{min}]$

 MIN-HEAPIFY(A, min)

