

## Homework 5: Priority Queues and Hashing

Due date

Section 1072: Wed 4/20

Sections 1071 and 1073: Thur 4/21

1. (10 points) Consider a min binary heap of  $N$  elements stored in an array. Write an algorithm in pseudo code that deletes an element at index  $k$  where  $1 \leq k \leq N$ . The operation should maintain the heap order. Discuss the worst case performance (in Big-Oh) of your algorithm. In your discussion make sure the time performance is expressed in terms of  $N$  and  $k$ .
2. (10 points) Insert the following keys into an initially empty hash table of size 11: 89, 19, 50, 59, 70, 26. You should use division method to generate hash values, and use linear probing of open address with  $f(i) = i$  to resolve collision.
3. (5 points) Is hash table a good data structure for implementing priority queue? Justify your answer.