Homework Assignment #6

Posted on Sunday, 5/8/2016.
Due 10PM, Monday, 5/16/2016.

1. (20 points)
   (a) Exercise 17.3-3.
   (b) Is there a potential function such that the amortized cost of Insert is O(1), and the amortized cost of Extract-Min is O(log n)? If you think the answer is yes, give your solution. If you think the answer is no, give an explanation.

2. (20 points)
   (a) Exercise 17.3-6. Also consider the operation of Multi-Dequeue(Q, k).
   (b) Is it possible to reverse the role of queues and stacks in part (a)? If you think the answer is yes, give your solution. If you think the answer is no, give an explanation.

3. (20 points) Exercise 17.3-7. Replace Delete-Larger-Half(S) with Delete-Larger(S, k), which deletes the largest ceiling(|S|/k) elements from S for any given $1 \le k \le 4$.

4. (20 points) Exercise 23.2-8.

5. (20 points) Exercise 24.3-4.