Q1

1

1. While loop runs n times
2. Insert shifts all elements by 1, therefore does n operations
3. Thus time complxity is O(n^2)

2

1. While loop runs n times
2. Append takes constant time
3. thus time complexity is O(n)

Q2

c)

- Doubling and 4x shrinking keeps size between n and 4n
- The append() and pop() taking O(n)
- Thus cost is also O(n)
- THerefore total complexity is O(n^2)

Q3

1. Makes array of n items
2. Loop 1 takes O(n)
3. Loop 2 does n-1, thus time is O(n)

Q4

a)

1. Loop runs n times
2. Remove() is called in loop n times and takes n operations
3. Thus time is n*n O(n^2)

c)

1. Loop runs n times
2. Pop is constant time
3. thus time is O(n)