

CMPE 242
Spring 2021
Hands-On Activity 5

- Find the running time of the following code fragments.
- Give your answers in *Big-O* and \sim notations.

RECURSIVE ALGORITHMS

1.	<pre>int factorial(int n) { if (n == 0) return 1; else return n * factorial(n-1); }</pre>	Answer: _____
2.	<pre>void hanoi(int n, char source, char dest, char spare) { if (n > 0) { hanoi(n-1, source, spare, dest); moveDisk(source, dest); hanoi(n-1, spare, dest, source); } }</pre>	Answer: _____

3.	<pre> int binarySearch (int[] arr, int x, int low, int high) { if (low > high) return -1; int mid = (low + high) / 2; if (arr[mid] == x) return mid; else if (arr[mid] > x) return binarySearch(arr, x, low, mid-1); else return binarySearch(arr, x, mid+1, high); } </pre>	<p>Answer: _____</p>
4.	<pre> void f (int n) { if (n == 1) System.out.println("Tick"); if (n > 1) { f(n/2); f(n/2); } } </pre>	<p>Answer: _____</p>