# **CSCE146 – Practice Exam (Midterm 2)**

CSCE146 F2017 SI | Midterm #2 | JJ Shepphard’s class

**Asymptotics**

1. Sort the Big O times in Bounding order.

O(n) O(n2) O(n2lg(n)) O(n3) O(1) O(n!) O(nn) O(lg(n)) O(2n)

1. List the Big O times (Worst-case) of the following algorithms

Binary search, Merge Sort, Quick Sort, Insertion Sort, Bubble Sort, Selection Sort, Binary Search Tree Insertion, Tower of Hanoi, Travelling Sales Person

**Java Code**

1. Write a Method for Binary Search

public static Boolean binarySearch(int[] a, int value

**Binary Search Trees**

1. Remove 28 from this BST. Show end result.
2. Show Pre-order, In-order, post-order and breadth-order traversals of this tree

**Heaps**

1. Write insert method for a heap

public void insert(int a) {

1. Remove from the Min Heap and show end result.
2. Using the array implementation of a min heap, show the array after inserting 7

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Value | 5 | 4 | 11 | 8 | 6 | 16 | 20 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Value |  |  |  |  |  |  |  |

1. Mention Heapsort

**Graphs**

1. Talk about if Graphs are trees
2. For the Following Graphs:

* Show an Adjacency Matrix (Row is From, Column is To)
* Show the DFS and BFS Traversals