**School of Computer Science**

**CIS\*2520: Data Structures**

**Fall 2024, Lab 6**

**Week of Nov. 11 to Nov. 15**

**Trees**

1. Given the binary tree below

A diagram of a network

Description automatically generated

1. What is the root node?
2. List all Leaf Nodes
3. What is the height of the binary tree?
4. What is the degree of the node with a value of 74?

1. Write down the nodes visited in the following traversals
2. Pre Order Traversal of the tree
3. In Order Traversal of the tree
4. Post Order Traversal of the tree
5. Level Order Traversal of tree
6. Which traversal gives a sorted version of a tree?

**Heaps**

1. Given the following heap A diagram of numbers and circles

   Description automatically generated
2. determine if it is a max heap or min heap. Explain your answer.
3. In this heap, insert elements 55, show where the insertion location is, and the steps to restore the heap
4. Following the previous step (after the insertion of 55), remove 65, and show the steps to restore the heap

4. Given an array of numbers, construct a min-heap. Show your steps.

Array = [15,98,9,67,22,16,2,11,69].

5. Write pseudocode for heapsort