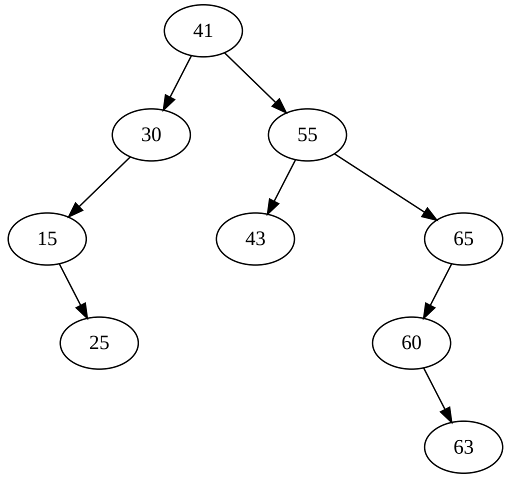
1. (5 points) Considering the BST below:



What is the output of a postorder traversal that, for each visit, prints the *depth* of the node?

A. 3, 2, 1, 2, 4, 3, 2, 1, 0

B. 3, 2, 3, 2, 1, 4, 2, 1, 0

C. None of the others

D. 3, 2, 1, 0, 4, 3, 2, 1, 0

E. 4, 2, 1, 0, 1, 3, 2, 1, 0

1. ____________

2. (5 points) Consider an empty hash table of length 11, in which keys $17, 22, 11, 36, 28, 41, 19, 30$ are inserted with $h(x) = (x+5) \mod 11$ and separate chaining. What is the total number of *collisions*?

2. ____________

3. (5 points) Indicate the sum of the values corresponding to all statements that are `True`. Mark 0 if none are `True`:

(1) A binary heap is a complete binary tree

(2) 2^h is the minimum number of nodes in a binary heap of height h

(4) Traversing a BST using *pre-order* results in a sorted list of keys

(8) In a max-heap each key is greater or equal to the keys of all ancestors

3. ____________

4. (5 points) A post-order traversal of a *max-heap* with 7 elements is $1, 2, \ldots, 6, 7$. What is the sum of all keys in nodes of height $h = 2$?

4. ____________

5. (5 points) Indicate the sum of the values corresponding to all statements that are `True`. Mark 0 if none are `True`:

   (1) A binary heap is a complete BST

   (2) Any complete tree can be efficiently represented as an array

   (4) The worst-case performance of finding the largest element of a BST is $\Theta(1)$

   (8) The best-case performance of finding the smallest element in a BST is $\Theta(1)$

5. ____________