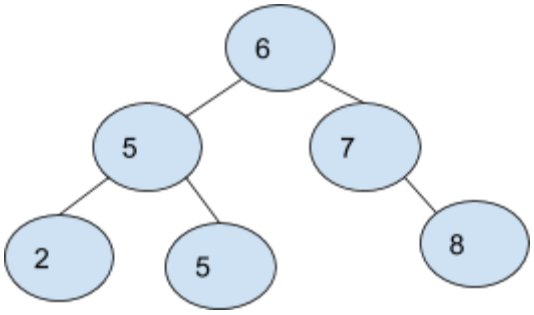
Exam 2

Name_____

1) (20 pts) Given the following binary search tree



a) Explain why this is a binary search tree (hint: what property does it have)
b) Draw and/or explain how to search for key = 2.

2) (40 pts) Given the Fibonacci sequence

fib(n) =

0	for n = 0
1	for n = 1
fib(n-2) + fib(n-1)	for n >1

a) Draw the recursion tree for fib(5).
b) Why is this a good dynamic programming problem?
c) Write a top down algorithm for fib(n).
d) Write a bottom up algorithm for fib(n)

3) (20 pts) Using the following hash function h(k) = k % 12 and collision resolution by chaining (order in linked list does not matter), draw and/or explain how the hash function hashes the below keys into a hash table

a) h(13)
b) h(14)
c) h(26)
d) Draw and/or explain the hashing processes for looking up key = 26?

4) (20 pts) Draw and/or explain the solution to the activity problem

Activity	a1	a2	a3	a4	a5	a6	a7	a8
Start	1	0	1	4	2	5	3	4
Finish	3	4	2	6	9	8	5	5