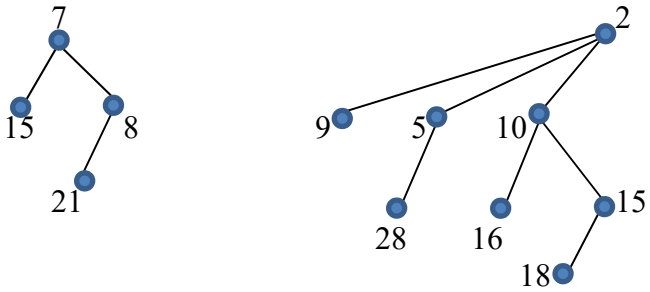
EECS560 **HW#5** **12/27/18**

Instruction: You must show your tree clearly after each insertion/deletion/modification for credit. No credit will be given if you do not show all your trees/work.

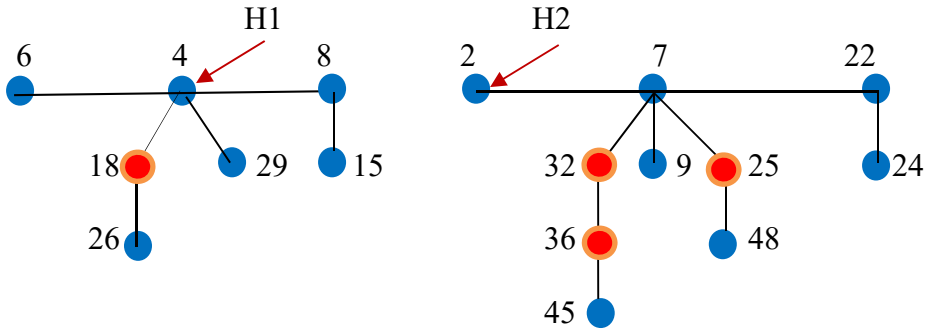
1. (15) Construct a Binomial Queue Q by inserting <2, 1, 4, 5, 9, 3, 6, 7, 8, 12, 11, 10>, in the given order, into an initially empty queue. When done, illustrate the data structure used in implementing the resulting Binomial queue.

2. (15) Perform deleteMin(Q) operation on the following Binomial Queue Q. When done, illustrate the data structure used in implementing the resulting binomial queue.

Q:

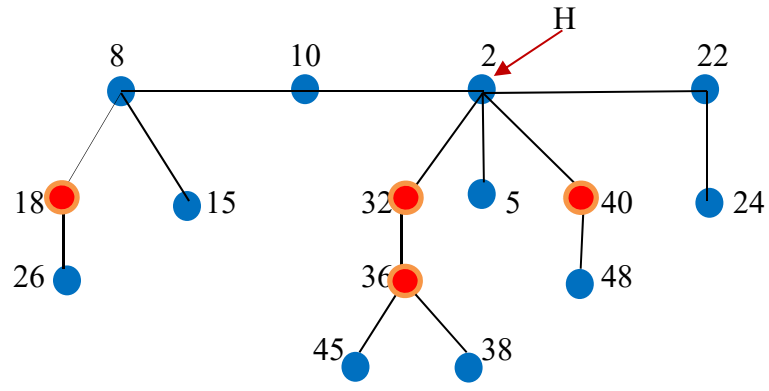


3. (10) Perform concate(H1,H2) on the following two Fibonacci heaps H1 and H2, where ● is a marked node.

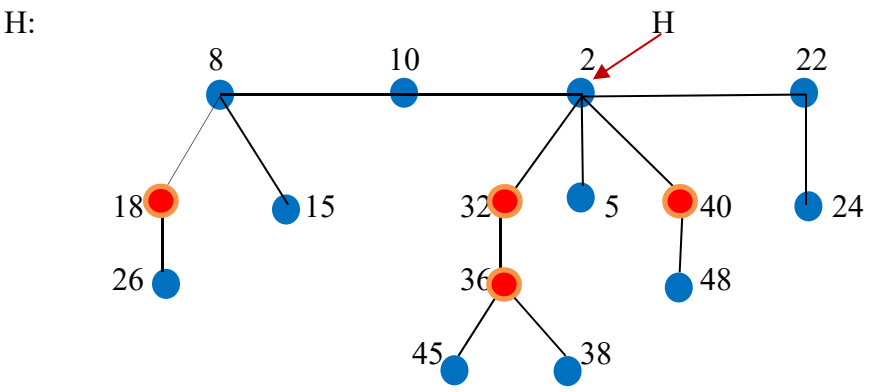


4. (10) Show the data structure used in implementing the following Fibonacci heap H, where ● is a marked node.

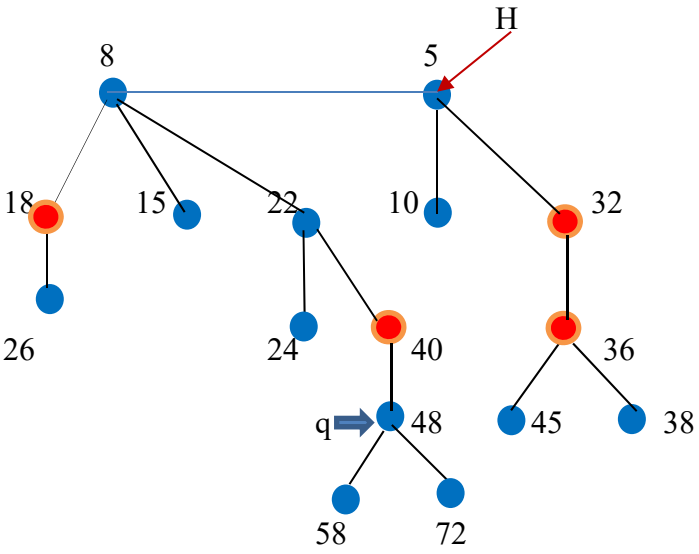
H:



5. (15) Perform deleteMin(H) on the following Fibonacci heap H, where ● is a marked node.
Remark: you must show all steps clearly for credit.



6. (15) Perform delete(q,H) on the following Fibonacci heap H, where ● is a marked node.
Remark: you must show all steps clearly for credit.



7. (20) Given a set of 8 records with priorities S = {12, 14, 16, 9, 7, 13, 10, 15}.
   (a) Construct an AVL tree for S by inserting the records, in the given order, into an initially empty AVL tree.
   (b) Construct an AVL tree for S by inserting the records, in the reversed given order, into an initially empty AVL tree.
   Remark: You must show your tree and indicate the type of rotation performed, if any, after each insert operation.