CS202
Section 1
Quiz No. 5: Heap Construction by One by One Addition & Heap Sort
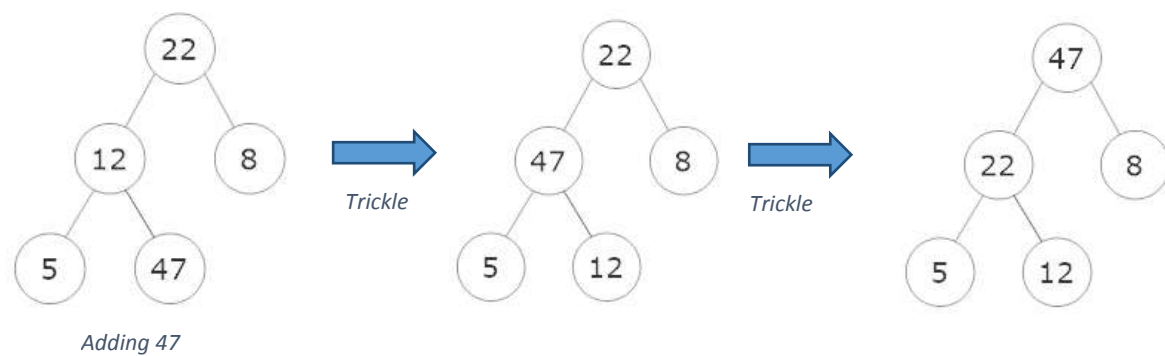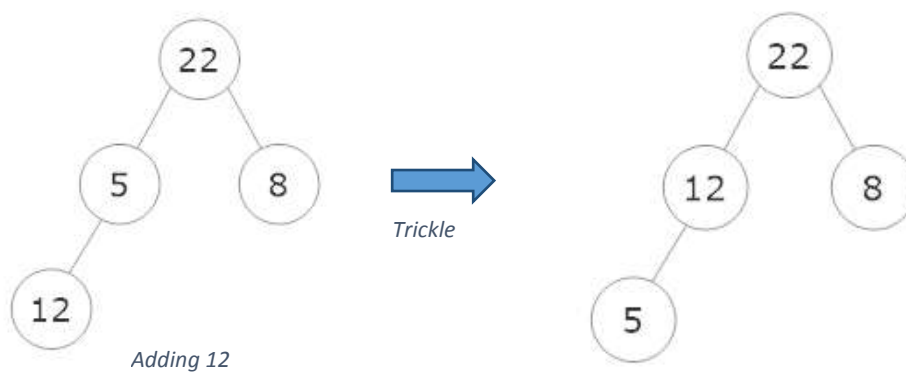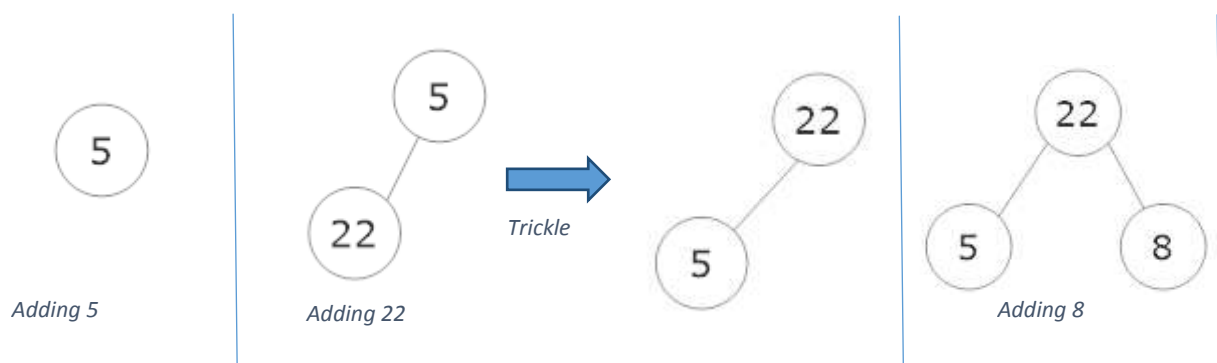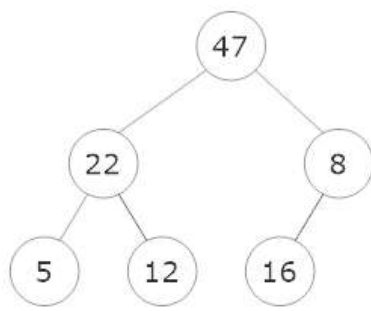**November 6, 2015**
Solutions

Q-1) Construct a (binary) max-heap by inserting the following numbers one by one
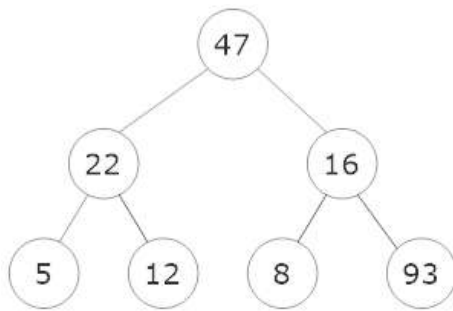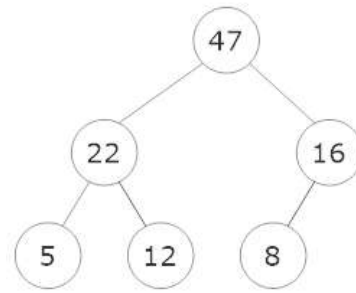
5, 22, 8, 12, 47, 16, 93

A-1)

Adding 5   *Adding 22*   *Trickle*   *Adding 8*

Adding 12   *Trickle*

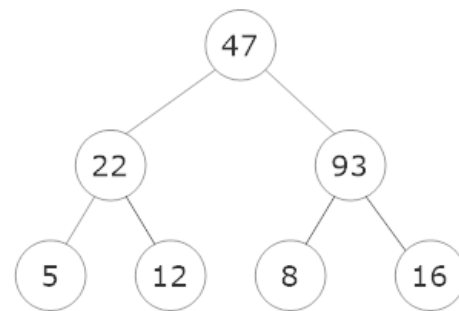*Adding 47*   *Trickle*   *Trickle*
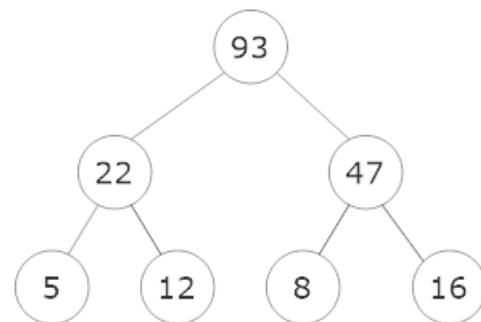
Adding 16

Trickle

Adding 93

Trickle

Trickle

Final Heap

Q-2) You are given the following binary max-heap, apply heap-sort and show the contents of the array that holds the tree after deleting the root and obtaining the new heap structure.

A-2)

Swap

Rebuild

47	22	40	10	15	27

27	22	40	10	15	47

Swap

Rebuild

40	22	27	10	15	47

15	22	27	10	40	47

Swap

Rebuild

27	22	15	10	40	47

10	22	15	27	40	47

| 22 | 10 | 15 | 27 | 40 | 47 |

Swap →

| 15 | 10 | 22 | 27 | 40 | 47 |

Swap →

| 10 | 15 | 22 | 27 | 40 | 47 |

Final array:

| 10 | 15 | 22 | 27 | 40 | 47 |