King Saud University
College of Computer and Information Sciences
Computer Science Department

CSC 212 **First Semester 1439-1440**

Tutorial # 13

Problem 1

a) Construct a new binary min-heap from the following elements: *12, 5, 17, 22, 20, 9, 1, 32, 50, 16, 25, 8, 44 and 33* using the top-down approach
b) Perform three *RemoveRoot* operations on the heap you built in **a)**
c) Apply *HeapSort* on the heap you built in **a)**

Problem 2

Construct a max-heap from the following array using the bottom-up approach

0	1	2	3	4	5	6	7	8
-	1	20	9	24	9	15	10	54

Problem 3

What is the complexity of building a binary heap from a sequence of elements when all elements are

a) Sorted according to the heap property
b) Sorted in the inverse of the heap property

Problem 4

Write the method *isMaxBinaryHeap(int[] elements, int size)* that returns true if and only if array *elements* satisfies max-binary heap condition.