

# CSE 202 Midterm 3 Part (a)

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## I. QUESTION (HEAP) (20 POINTS)

Given the index of a heap node in a max-heap, write a function that returns the minimum descendant of this node.

```
HeapNode minDescendant(int index)
```

## II. QUESTION (DISJOINT SET) (20 POINTS)

Write a function that calculates the number of singleton disjoint sets in a disjoint set structure. A disjoint set is singleton, if the number of sets in that disjoint set is 1.

```
int numberOfSingletons()
```

## III. QUESTION (GRAPH) (20 POINTS)

Write a function that finds the minimum weight in a weighted graph. Write the function for both adjacency matrix and adjacency list representation.

```
int minimumWeight()
```