

### Question 1 (10 marks)

One question on tree algorithms, for example,

- Implement function `isBalanced(BSTree t)` that returns 1 if a given tree is balanced; zero otherwise. We say a tree is balanced if for every node in the tree, the difference between the number of nodes in the left sub-tree and the number of nodes in the right sub-tree must not be greater than one. A tree with no nodes is considered to be balanced. Please note that the criterion is (slightly) different to a height balanced tree.
- Implement function `countNodes(BSTree t)` that counts and returns number of nodes in a given tree.
- Implement function `countLeaf(BSTree t)` that counts and returns number of leaf nodes in a given tree.
- Implement function `height(BSTree t)` that finds and returns height of a given tree.
- Implement function `countOdds(BSTree t)` that counts and returns number of nodes in a given tree with odd key values.

### Question 2 (10 marks)

One question on graph algorithms (using say DFS and/or BFS), for example,

- `hasPath(G,src,dest)`, [goto the slide](#)
- `findPath(G,src,dest)`, [goto the slide](#)
- `findPathBFS(G,src,dest)`, [goto the slide](#)
- `dfsCycleCheck(G,v)`, [goto the slide](#)
- `components(G)`, [goto the slide](#)

### Question 3 (8 marks)

Multiple choice and Short answer questions on topics across the course material.

### Question 4 (9 marks)

Short answer questions on Graph Algorithms (MST, SP, etc.), Tree Algorithms, and **other topics** from the course material.

### Question 5 (4 marks)

Short answer questions on Tree Algorithms.

### Question 6 (9 marks)

Short Answer Questions on Text Processing.

[See Week 07 Problem Set](#)