CS146-Lab4 Due: March-2-2016 at 11:59PM Name:

Reading assignments:

Read chapter-4 and class lecture notes.

Answer the following questions in one word document. Then email it to me to [sjsumortezaie@gmail.com](mailto:sjsumortezaie@gmail.com)

The subject of your email must be CS146Lab4Section#. Please read the Format of the lab.

If you have any questions about the lab please send the question to [answerneededsoon@gmail.com](mailto:answerneededsoon@gmail.com)

*Note that you should have java programs for problems 4 and 5 and have a main to test your code. A copy and paste of all source codes and screen shot of results are needed for these problems.*

1. What is the express tree for the following expression:

A – (B \* C / F + (E – M)) + M

Using the expression tree, show the prefix expression for above.

1. Show the result of inserting 20, 100, 80, 4, 2, 30, 25, 120 and 115 into an initially empty AVL tree. List the type of rotations needed and when they happen. Show the resulting AVL tree.
2. Assuming the preorder traversal is in the following order, show the postorder traversal.

80, 4, 2, 20, 30, 25, 100, 90, 95

1. Write the implementation code for a BST. Include recursive methods to find the number of nodes, number of leaves and height of the tree. Test your code by entering values given in exercise 2.
2. Exercise 4-46 page 166. Test your code by having two similar and two not similar binary trees.