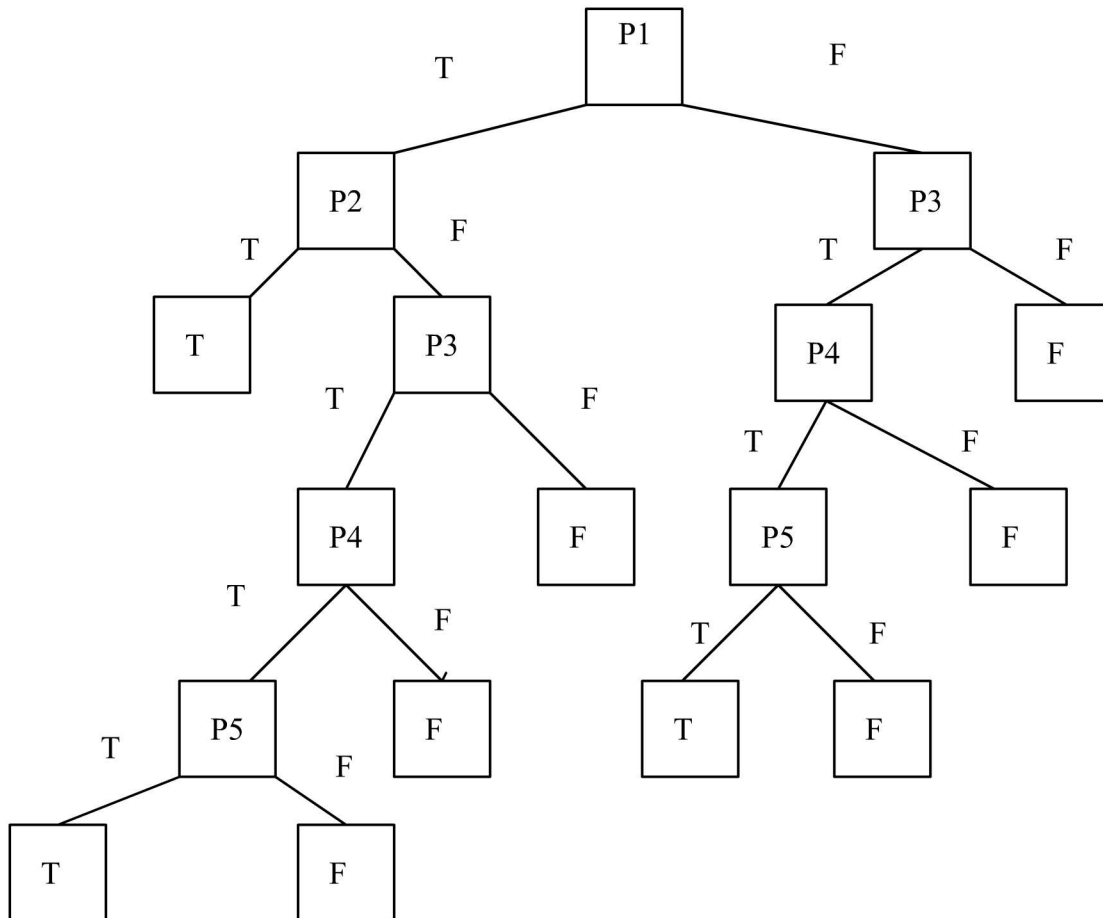


Solutions to Question 4

The decision tree should be expanded out for the equation. A tree that looks like this should definitely have been included in your solution for full credit.



Some students started with P3 and try to expand the tree. This resulted in a tree with nine nodes rather than 8 nodes as seen in the above solution. The point of the problem was to find the **smallest** tree, and therefore points were taken off for having a larger tree.

Also, the second half of the question asked for why the decision tree is larger than the expression itself. Although, it is quite clear from illustration that the decision tree is larger than the expression, a discussion regarding **redundant structure** in the tree is necessary. In other words, you should explain that the subtree including P3, P4 and P5 is reproduced on two sides of the tree. This is not the case of the expression. Other valid explanations along these lines was given credit as well.