1997 Paper 6 Question 5

Programming in C and C++

Write a declaration of a C++ class that might be used to implement a binary tree with each node able to hold an integer. Your implementation (i.e. the class itself and those bodies which conveniently fit within it) should make it impossible for casual programmers to access the pointer fields that link parts of the tree together except through cleanly specified access functions. Show how you would overload the "+" operator in C++ to provide a neat notation for adding a new item into such a tree.   [20 marks]