

1994 Paper 13 Question 6

Programming Language Compilation

Discuss two possible strategies that you might use to translate the abstract syntax tree corresponding to an integer expression composed of simple variables, integer constants and the usual integer operators $+$, $-$, $*$ and $/$ into reasonable quality code for a machine with eight general-purpose registers.

You should pay particular attention to how you would control the allocation of registers and anonymous store locations, and you should outline what optimisations are convenient to perform. [20 marks]