

University of Cape Town
Department of Computer Science
CSC3003S Final Oral Solution
2007

Marks : 10

Time : 10 minutes

Student : _____

COMPILERS II

	What is one use of a symbol table? [1] <i>check for def-before-use, check for duplicate defs, etc.</i>
	What are activation records? [1] <i>the layout of data needed to support invocation of a subprogram</i>
	For programs with recursion, where do we typically store activation records and why? [2] <i>on the stack – so each invocation of a subprogram has a unique environment</i>
	In terms of complexity, how does the intermediate representation language compare to the source language and machine code? [1] <i>It is simpler than both.</i>
	What is constant folding? [1] <i>replacing calculations with only constants with the computed values</i>
	What is loop unrolling? [1] <i>converting a (small) loop to a series of copies of the loop body</i>
	Why do we apply canonicalisation transformations to the IR tree? [2] <i>to resolve mismatches between IR and machine code and linearise code</i>
	Do we have to do basic block and trace analysis? Explain. [2] <i>No. the code will simply be longer/slower if we did not do this.</i>
	Total Marks