

6. (a) Instruction Selection algorithms try to reduce the running ‘cost’ of generated code. Explain the factors that affect the calculation of the cost of machine instructions. [5]
- (b) Explain the role of the architecture of the target machine (ie whether a RISC or CISC processor) in the design of the Instruction Selection phase of a compiler. [6]
- (c) In the context of data-flow analysis, explain what is meant by a *reaching definition*, and justify whether this information flows backwards or forwards through a control flow graph. [7]
- (d) Explain what is meant by a *live variable* and justify whether this information flows backwards or forwards through a control flow graph. [7]