

## 2002 Paper 6 Question 5

### Comparative Programming Languages

- (a) Briefly discuss the compromises that must be made when standardising a programming language. [8 marks]
- (b) Discuss the relative merits to (1) the application programmers and (2) compiler writer of the following ways of specifying a programming language.
- (i) A concise readable user manual for the language in English containing many useful programming examples.
  - (ii) A very long and highly detailed description, in English, of every feature of the language. This manual contains no programming examples.
  - (iii) A concise but rigorous description using a formal grammar to describe the language syntax and making extensive use of mathematical notations taken from set theory,  $\lambda$ -calculus, predicate calculus and logic to describe the semantics of the language.
  - (iv) The source code for a clean and elegant machine-independent interpretive implementation of the language.

[12 marks]