

2004 Paper 3 Question 4

Comparative Programming Languages

- (a) Discuss to what extent a programmer can expect a program that conforms to a standard to generate identical results when run under different conforming compilers on different machines. [6 marks]
- (b) ALGOL 60 provided call by value and call by name, Pascal provided call by value and call by reference, and ALGOL-W provided a variety of calling methods including call by result and call by value-result. Briefly describe the calling mechanisms just mentioned and discuss why most modern programming languages provide only call by value. [8 marks]
- (c) Discuss the reasons why languages such as Fortran, Algol and PL/I designed in 1950s and 1960s are less widely used than languages designed in the last 20 years. [6 marks]