2001 Paper 7 Question 1

Specification and Verification I

(a) What is the difference between partial and total correctness?   [4 marks]

(b) Why is the assignment axiom more problematical for total correctness than for partial correctness?   [4 marks]

(c) State the WHILE-rule for total correctness.   [4 marks]

(d) What needs to be added to the method of verification conditions to make it work for total correctness?   [4 marks]

(e) Explain how a total correctness specification $[P]C[Q]$ can be embedded as a term TotalSpec $p\ c\ q$ in higher-order logic.   [4 marks]