2006 Paper 7 Question 6

Specification and Verification I

(*a*) What is total about total correctness? [2 marks]

(*b*) State the WHILE-Rule of Floyd–Hoare Logic. [2 marks]

(*c*) Give a proof of {T} WHILE T DO SKIP {F}. [2 marks]

(*d*) What does the truth of {T} WHILE T DO SKIP {F} show? [2 marks]

(*e*) How are expressions like 1/0 handled in Floyd–Hoare Logic? [2 marks]

(*f*) What are verification conditions? [2 marks]

(*g*) Must the verification conditions be true for correctness? Briefly justify your answer. [2 marks]

(*h*) Name *one* method used to prove verification conditions. [2 marks]

(*i*) What are the "hooked" variables in VDM used for? [2 marks]

(*j*) What are weakest preconditions and weakest liberal preconditions? [2 marks]