COMPUTER SCIENCE TRIPOS Part IB – 2016 – Paper 6

3 Computation Theory (AMP)

(*a*) Give a precise definition of the collection of *partial recursive functions*. You should define any functions, or constructions on partial functions that you use in your definition. [9 marks]

(*b*) Explain why every partial function computable by a register machine is a partial recursive function. You may assume without proof the existence of suitable primitive recursive functions for manipulating numerical codes of register machine configurations so long as you state their properties precisely. [10 marks]

(*c*) Is every partial recursive function computable by a register machine? [1 mark]