3 Computation Theory (AMP)

(*a*) Define what is a *Turing machine* and a *Turing machine computation*. [7 marks]

(*b*) What is meant by a *partial function* from $\mathbb{N}^n$ to $\mathbb{N}$? Define what it means for such a partial function to be *Turing computable*. [4 marks]

(*c*) Describe the *Church-Turing Thesis* and some evidence for its truth. [4 marks]

(*d*) Assuming the existence of a universal *register* machine, give an example, with justification, of a partial function that is not Turing computable. [5 marks]