2. (a) Present a procedure for deciding satisfiability of conjunctions of equalities between terms that are built from variables and uninterpreted functions. The procedure should allow uninterpreted functions with several arguments. [20]

   (b) Describe by an example how equality logic with uninterpreted functions can be used to verify correctness of optimisations of pipelined circuits. The example should involve a circuit with a multiplexer and at least three pipeline stages. [15]