

## 1993 Paper 13 Question 10

### Computation Theory

Explain what is meant by the following:

' $F$  is a recursively enumerable set each of whose elements is a total recursive function  $f : \mathbb{N} \rightarrow \mathbb{N}$ .' [3 marks]

In each of the following cases state with reasons whether the set is recursively enumerable:

- (a) the set  $A$  of all total recursive functions  $a : \mathbb{N} \rightarrow \mathbb{N}$  such that  $a(n+1) \geq a(n)$  for all  $n \in \mathbb{N}$  [7 marks]
- (b) the set  $D$  of all total recursive functions  $d : \mathbb{N} \rightarrow \mathbb{N}$  such that  $d(n+1) \leq d(n)$  for all  $n \in \mathbb{N}$  [10 marks]