COMPUTER SCIENCE TRIPOS Part IA – 2006 – Paper 1

1 Foundations of Computer Science (LCP)

This question has been translated from Standard ML to OCaml

Give an example of an OCaml function belonging to *each* of the following complexity classes:

(*a*) $O(1)$;

(*b*) $O(n)$;

(*c*) $O(n \log n)$;

(*d*) $O(n^2)$;

(*e*) $O(2^n)$.

Each answer may contain code fragments (involving well-known functions) rather than self-contained programs, but must include justification. (The upper bound in each case should be reasonably tight.) [2 marks each]