

2006 Paper 1 Question 1

Foundations of Computer Science

Give an example of an ML 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]