2002 Paper 5 Question 10

Foundations of Functional Programming

(*a*) Explain how a lambda-term can be converted into a form that uses only the combinators S and K. [4 marks]

(*b*) Illustrate your method by writing down a lambda term for each of the following functions and then expressing it in terms of just S and K.

(*i*) fun I x = x

(*ii*) fun B f g x = f (g x)

(*iii*) fun C f x y = f y x

(*iv*) fun A x y = y (x x y)

[4 marks each]