

2010 Paper 1 Question 3

Discrete Mathematics I

Give structured proofs or counterexamples for the following.

(a) $((A \Rightarrow B) \wedge (C \Rightarrow \neg B)) \Rightarrow (A \Rightarrow \neg C)$ [10 marks]

(b) $(\exists x.A(x) \wedge \forall y.A(y) \Rightarrow y = x) \Rightarrow (\exists x.\forall y.(A(y) \Leftrightarrow y = x))$ [10 marks]