

2006 Paper 9 Question 2

VLSI Design

(a) What is *dual-rail logic*? Why is it useful in self-timed circuits? [4 marks]

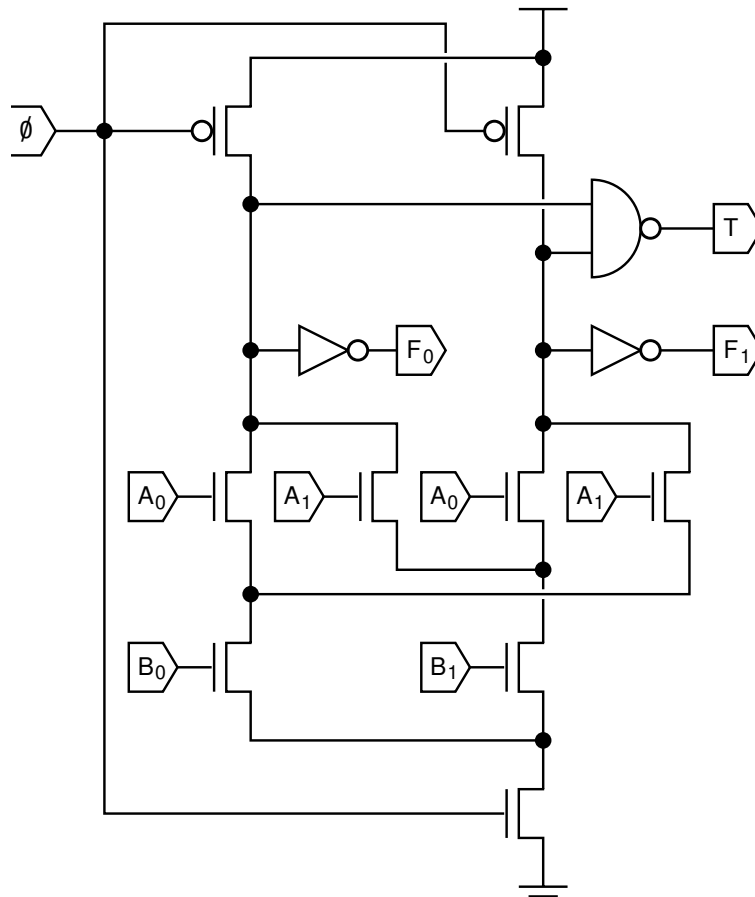
(b) Using dual-rail logic, sketch circuits for

(i) an inverter; [2 marks]

(ii) an AND gate; [3 marks]

(iii) an exclusive OR gate. [3 marks]

(c) The following circuit shows a dynamic dual-rail gate:



What function does it implement? Explain how it works.

[8 marks]