

2007 Paper 9 Question 8

Specification and Verification II

- (a) Given a predicate \mathcal{B} specifying a set of initial states and a transition relation \mathcal{R} , define the set of reachable states. [4 marks]
- (b) Explain the difference between *Linear Temporal Logic* and *Interval Temporal Logic*. [4 marks]
- (c) (i) What is *model checking*? [2 marks]
- (ii) Explain the key idea of symbolic model checking. [2 marks]
- (d) (i) What is a SERE in PSL? [2 marks]
- (ii) Give an example of a PSL formula involving a SERE and explain its meaning. [2 marks]
- (e) (i) What is the difference between *dynamic verification* and *static verification*? [2 marks]
- (ii) What kind of tools are used with each sort of verification? [2 marks]