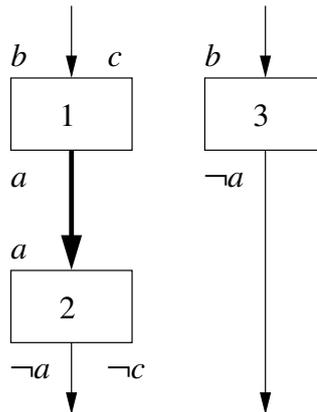


2011 Paper 4 Question 2

Artificial Intelligence I

- (a) Define what it means for the solution to a partial order planning problem to be *consistent*. [4 marks]
- (b) Define *promotion* and *demotion* in the context of partial order planning, and explain why they are needed. [4 marks]
- (c) The following diagram shows part of an unfinished solution to a partial order planning problem represented in the STRIPS language.



- (i) Explain why this part of the solution is not consistent. [2 marks]
- (ii) Can a single promotion or demotion be used to make this part of the solution consistent? In each case either show how this can be achieved, or give an argument as to why it cannot. [4 marks]
- (d) The following diagram shows a modified part of the unfinished solution, which is still inconsistent. Can a single promotion or demotion be used to make this part of the solution consistent? In each case either show how this can be achieved, or give an argument as to why it cannot. [6 marks]

