

## **Module Title: Types and Semantics for Programming Languages**

### **Brief notes on answers:**

Students have covered lists, inductive definitions, formalisation of imperative languages and Hoare rules, formalisation of type systems and proofs of progress and preservation. Students will have seen similar problems on the Mock Exam.

- Full credit is given if the student submits a file that Coq processes successfully and that includes all relevant definitions and proofs.
- Partial credit is given if the student submits a file that Coq processes successfully.
- Partial credit is given if the answer is obviously correct, but fails to process due to a syntax error.
- Partial credit is given if the student submits a partial solution, e.g., a relevant lemma is proved or part of the result is obtained with Coq's 'admit'.
- Partial credit is given if the student formulates a relevant lemma, and further credit for proving the lemma.
- Partial credit is given if the student is on the right track in a proof, e.g. they chose the proper variable or hypothesis to use for induction.
- Partial credit is given if the student gets into a problematic state but recognises this (e.g., observes that the current subgoal does not follow from the hypotheses).
- A small part of the credit is reserved for clear presentation of the solution (proper use of Case and SCASE, good use of indentation). Students should clearly mark code they add to the provided file.