Solution notes

Tiny Question (Part IA) 2005 – Paper 2 Question 1b (4 Marks) (AJRGM)

Computer Perspectives

1. A type system can ensure that, if the compiler predicts a certain type of result for a program, then every time it runs its result will be of the predicted type.

2. Software notation, instead of being a separate language, can be a part of the notation used a theory of discrete systems, just as a differential equation is part of the theory of continuous systems.

3. A computing agent can be considered as the sum of its powers to communicate informatically, just as a physical body is the sum of its powers to interact physically.

4. A theory can describe structure of distributed systems in different ways: e.g. an electricity grid is either N connected power plants, each being a computer controlling a generator, or N generators connected to a single N-way distributed computer.

5. A theory can provide users with ways to reason logically about their programs; if properties of the parts are thus verified, this may ensure properties of the whole program.