

CSE/PHI 484/584, Spring 2007
Philosophy of Computer Science
Final Exam

Prof. William J. Rapaport

3 May 2007

Answer any 3 of the following. All questions are equal in weight. Write about 250–500 words for each answer. Put each answer in a separate blue book. On the cover of each blue book, please put your name, today's date, and the number of the question.

1. Evaluate the following argument:

Natural science is the systematic observation, description, experimental investigation, and theoretical explanation of natural phenomena. Computer science is the study of computers and computing. Therefore, computer science is not a natural science.

2. Evaluate the following argument:

Computers running certain computer programs can make rational decisions (at least in the sense of outputting values of functions that serve as a basis for decision making). That is, they can determine the validity of arguments and ascertain the probable truth-values of the premises of the arguments, and they can consider the relative advantages and disadvantages of different courses of action to determine the best possible choices. For example, there are computers that can diagnose certain diseases and (presumably) recommend appropriate medical treatments. Suppose for the sake of argument that some of these computers can make decisions (and recommendations) on certain important matters concerning human welfare. Suppose further that they can regularly make *better* recommendations than human experts on these matters. Therefore, these computers *should* make decisions on these important matters concerning human welfare.

3. What is computer science?
4. Can computer programs be verified?
5. What do you think is the most fundamental or important question in the philosophy of computer science? Pose the question, justify its importance, and outline your answer to it.