1. Define Run(, “aa”) and Run( “bb”) }. Show that is not computable.
2. Let Run(, “bbb”) }. Give a mapping reduction from to HLT.
3. Recall that is the set of all strings on which program stops and returns 1. Define is a regular language}. Is computable? Justify your answer.
4. For the purposes of this exercise, assume that the output of a program is an integer. Suppose Run( and Run(. Give a mapping reduction from to . Be sure that you know what properties the reduction needs to have before you start to describe the reduction.