1.

a)

Y

b)

Y

c)

N

d)

Y

e)

Y

f)

Y

g)

Y

h)

N

i)

Y

j)

Y

k)

N

l)

N

m)

N

n)

N

o)

Y

p)

N

2.

In order to decided that an arbitrary M never reenters the initial state M will have to halt on any input w so we know for certain that it can never reenter that state. this implies that a program that decides L has a complexity that can be reduced to deciding if M halts on w which we know to be undecidable. proving that L is undecidable by reduction.