CS 401: ARTIFICIAL INTELLIGENCE

ASSIGNMENT 3

Use GA to solve the following image.

Specify the following:

a. Population encoding

b. The fitness function and the value of the fitness function for the best solution

c. How did you do crossover and mutation

d. What is the initial population size? Did ant individual converge to the best solution?

e. What are the rate/values of s(selection rate), r (cross over rate) and m (mutation rate)

f. How many iterations it took to converge to a solution for each case. If you did not get to best solution what solution did you get. Insert the solution for each case along with its fitness.

   Case 1: using individual beyond s for mutation and crossover. <image> and <value>
   Case 2: using entire population for mutation and crossover.
   Case 3: using only the fittest s percent mutation and crossover.

g. Evolving images during the running of the program. So for example if you found the solution in 100 iterations, then show the best solution (or best population member) after 25,50,75 and 100 iterations.