Complete the gaps with the appropriate words:

Mimic, Fitness score, Offsprings, Roulette Wheel, Selection, Mutation rate, Selection, Crossover, Mutation, Mutation, Chromosomes, Search space

1. Genetic Algorithms were invented to _____ some of the processes observed in natural evolution.
2. Value assigned to each solution representing the abilities of an individual to `compete': _____
3. A population of individuals is maintained within a_____, each representing a possible solution to a given problem.
4. At the beginning of a run of a genetic algorithm a large population of random _____ is created.
5. At each step, the genetic algorithm selects individuals from the current population to be parents and uses them to produce the _____ for the next generation.
6. _____: apply random changes to individual parents to form children.
7. _____: to choose members from the population in a way that is proportional to their fitness.
8. _____: It does not guarantee that the fittest member goes through to the next generation, merely that it has a very good chance of doing so.
9. _____: This is the chance that a bit within a chromosome will be flipped (0 becomes 1, 1 becomes 0).
10. _____*:* choose the individuals, called *parents*, that contribute to the population at the next generation.
11. _____: combine two parents to form children for the next generation.
12. _____: Its purpose is to maintain diversity within the population and inhibit premature convergence.

ANSWERS

Mimic

1. Genetic Algorithms were invented to _____ some of the processes observed in natural evolution.

2. Value assigned to each solution representing the abilities of an individual to `compete': _____
   Fitness score

search space

3. A population of individuals is maintained within a_____, each representing a possible solution to a given problem.

4. At the beginning of a run of a genetic algorithm a large population of random _____ is created.
   chromosomes

5. At each step, the genetic algorithm selects individuals from the current population to be parents and uses them to produce the _____ for the next generation.

offsprings

Mutation

6. _____: Its purpose is to maintain diversity within the population and inhibit premature convergence.

Roulette Wheel selection

7. _____: to choose members from the population in a way that is proportional to their fitness.

8. _____: It does not guarantee that the fittest member goes through to the next generation, merely that it has a very good chance of doing so.
   Mutation rate

9. _____: This is the chance that a bit within a chromosome will be flipped (0 becomes 1, 1 becomes 0).

Selection

10. _____*:* choose the individuals, called *parents*, that contribute to the population at the next generation.
    Crossover

11. _____: combine two parents to form children for the next generation.
    Mutation

12. _____: apply random changes to individual parents to form children.