

### **Assignment 3**

**Last date of completion: 07/04/2021**

**Total marks: (10+10+10) =30**

1. Write a program (C/Python) to solve the 8-queen problem using stochastic hill climbing search strategy. You should report the following for the search strategy:
  - a. Demonstrate step-wise execution of the search strategy
  - b. The number of states/nodes generated/expanded
2. Write a program (C/Python) to solve the following problem using Genetic Algorithm. You should report the following for the search strategy:
  - a. Demonstrate step-wise execution of the search strategy
  - b. The number of states/nodes generated/expanded

Problem: Maximize  $f(x) = 2x^2 + 1$ , where  $0 < x \leq 6$

3. Write a program (C/Python) to solve the following problem using Particle Swarm Optimization. You should report the following for the search strategy:
  - c. Demonstrate step-wise execution of the search strategy
  - d. The number of states/nodes generated/expanded

Problem: Divide the N students in k groups based on their marks in AI such as diversity in each group is minimized.