## AEEM 5197/6097 "Soft Computing Based AI" or AEEM 7010: Prof. Kelly Cohen - Fall 2019

## **Homework Assignment HW#5**

Before Answering the questions below, please download the GA.ZIP file on Blackboard and purchase the following course Created by  $\underline{\text{Dr. Seyedali Mirjalili}}$  for  $\sim \$10$  "Introduction to Genetic Algorithms: Theory and Applications - Learn the main mechanisms of Genetic Algorithm as a heuristic Artificial Intelligence search or optimization in Matlab

https://www.udemy.com/course/geneticalgorithm/?couponCode=MATHWORKSREF

Then use the above software GA product to find ALL the maxima and minima points of the following nonlinear polynomic function:

$$F(x, y, z) = 30.x^2.y.z + 23.y^3.z - 23.x^4.y = 0$$

Please write summary of all the GA related stochastic parameters used by you and your observations. Now vary these stochastic parameters and conduct a simple parametric sensitivity analysis State the lessons you have learned (total 2-3 pages of report for this assignment) Please add the m files used while submitting