import math 2 value i 10 import sandom 8 (D) = (10.3) = (1) = 49 doj Objective Junction (=) return (x:3) * * d of simulated annicating Conjective function, is, itemp, cooling rate, at therations) wount 301 = 01 /110 auvient val = Objective function (7, augent 501) 1/99 1000 pent - 001 = current : 80 peny - 20 peny : object : but instructions of a current in 1 best - val = avvient. val temp = itemp 111000 miles. Inside iterations: 02 10 invitation and temp > stoffing tent then generate a new value by taking a random value and adding to current sof insummed since ns: euvient. sol + random caniform (=1,11) > millaution du: new-val- current value morous: minulais lush of du com If du corregative it means the new adultion has a lower value which makes it hetter for current-601 = new-splan cools = sold - grandes current val < new . voil ell if the new solution as Morse don't accept Next check if the solution found is the kest one if convient ! vale l'hist. Will a moisse of monois best . Evel = curinert_do! bust val aurrent val (substant , which i was Invumement the iterations palus: is=10 decrease the tench max ifucution: 10 by no sometimes of atopling temp = 1e - 8 temp: temp * itemp = 1000 coolerig rate=0.95 woung-rate

import math import random def objective - function (x): de simulated-annealing Cobjective-function, initial initial-temperature, cooling-rate, atophing-temperature, current_solution: unitial-solution auvient-value: Objective-function (workent-societion) best-abbution = current-dolution best-value = current-value tempurature: initial tempurature iteration: 0 while temperature 7 storquing - temperature and ateration (max iterationi: new_bolution: current_sidention + sandom.uniform (-) new value : Objective - function (new-solution) delta-value: new-value-current_value of delta-value(0. current - Solution = new-solution current-value = new-value an: forobability much ench (- delta value tempuah ij sandom. random() < fuesbubicity: convent-solution: new. solution / Current_value = new-value if awvient value L best value: best- whiten- cureent-solution best-value: current-value temperature: temperature * cooling rate Best sweeting: & best solut oteration+:1 Juint (f'ateration: & iteration), temperature: Stempurature Current Solution: { current_excution: 4 f}

return lest_ablution, best_value initial avalution: (0 initial remperature: (000 cooling-ran: 0.95 stopping demperature: 1c.8 max. iterations: 10 best-solution, best-value: simulated connecting (objective. function, initial-solution, initial-temperature, wolling-rate, stopping -temperature, max iterations) part (f "best solution", g(x) = Etest-value: 4, 63") aufut: iteration: 1 Tempurature: 950.0000, levent soln :9.4775 9.5096 iteration: 2 Temperature: 902.0000 Cerountion temperature: 857.3750 euvrent solg: 9.63.66 iteration: 3 Temperanua: 814,5062 current son: 10.4510 iteration: 4 Temperature: 7.73.7809 luvuen Soan : 10.1823 a Kration: 5 afterestion: 6 Temperature, 735.0918 award Soan. 10.1549 remperature: 698.337 auvien 504, 10.6004 iteration: 7 i boration: 8 tempurature: 663.4204 aurrent 8061:10.993 uteration: 9 Tempurature: 630.2494 (wound Soly: 10.8792 iteration:10 Temperature :598,7369 Couvrepu Soin:11.7439 Best ducn: 9-475315 Best duen: 9.475315 Bust such : 9. 475315 Best duch : 9.435315 Best botn: 9-475315 827.012A Best docn : 9. 475315 Bust duch : 9. 475315 Mess such: 9.475315 Bust doln: 9. 475315 Bust doen: 9.475315