DISCRETE OPTIMIZATION COMS4050&COMS7057 16 Sept, 2022

QUESTION FOR ASSIGNMENT-2

Consider the following distance matrix for the 7 city symmetric Travelling Salesman Problem (STSP)

$$M = \begin{pmatrix} 0 & 1.5 & 3 & 13 & 3.5 & 4.5 & 1.5 \\ & 0 & 1.5 & 1.3 & 13 & 13 & 2.3 \\ & & 0 & 1.5 & 3 & 13 & 3 \\ & & & 0 & 1.5 & 13 & 20 \\ & & & & 0 & 1.5 & 3.3 \\ & & & & & 0 & 1.5 \\ & & & & & & 0 \end{pmatrix},$$

where $m_{ij} = m_{ji}$. Minimize the above problem using the 2-Opt heuristic. Use $x = (2714653)$ as your starting solution. Count the number of improving solutions during the course of your two optimal procedure and list your improving solutions $(x^i, f(x^i))$. Report also the final solution (route) x^* and the corresponding optimal distance $f(x^*)$.

Total: 10 Marks;

Submit your single pdf file consisting of your computer program and results via email attachment.

SUBMIT YOUR ASSIGNMENT BY 5PM, 21st OCTOBER, 2022.

END