Algorithm 1 Simulated Annealing Algorithm

1: **Input:** Objective function $f(\cdot)$, initial solution X_0, initial temperature T_0, final temperature T_f, cooling coefficient α.

2: **Output:** Optimal solution X^*.

3: $T \leftarrow T_0$ ▷ Initialize temperature

4: **while** $T > T_f$ **do**

5:     **for** $i = 1$ **to** L **do**

6:         $X' \leftarrow \text{Neighborhood}(X_0)$ ▷ Generate new solution

7:         $\Delta F \leftarrow f(X') - f(X_0)$ ▷ Calculate change in objective function

8:         **if** $\Delta F < 0$ **then**

9:            $X_0 \leftarrow X'$ ▷ Accept new solution

10:         **else**

11:            Accept X' with probability $\exp(-\Delta F/T)$ ▷ Probabilistic acceptance

12:         **end if**

13:         **if** $f(X') < f(X^*)$ **then**

14:            $X^* \leftarrow X'$ ▷ Update current best solution

15:         **end if**

16:     **end for**

17:     $T \leftarrow \alpha \cdot T$ ▷ Update temperature

18: **end while**

19: **return** X^*