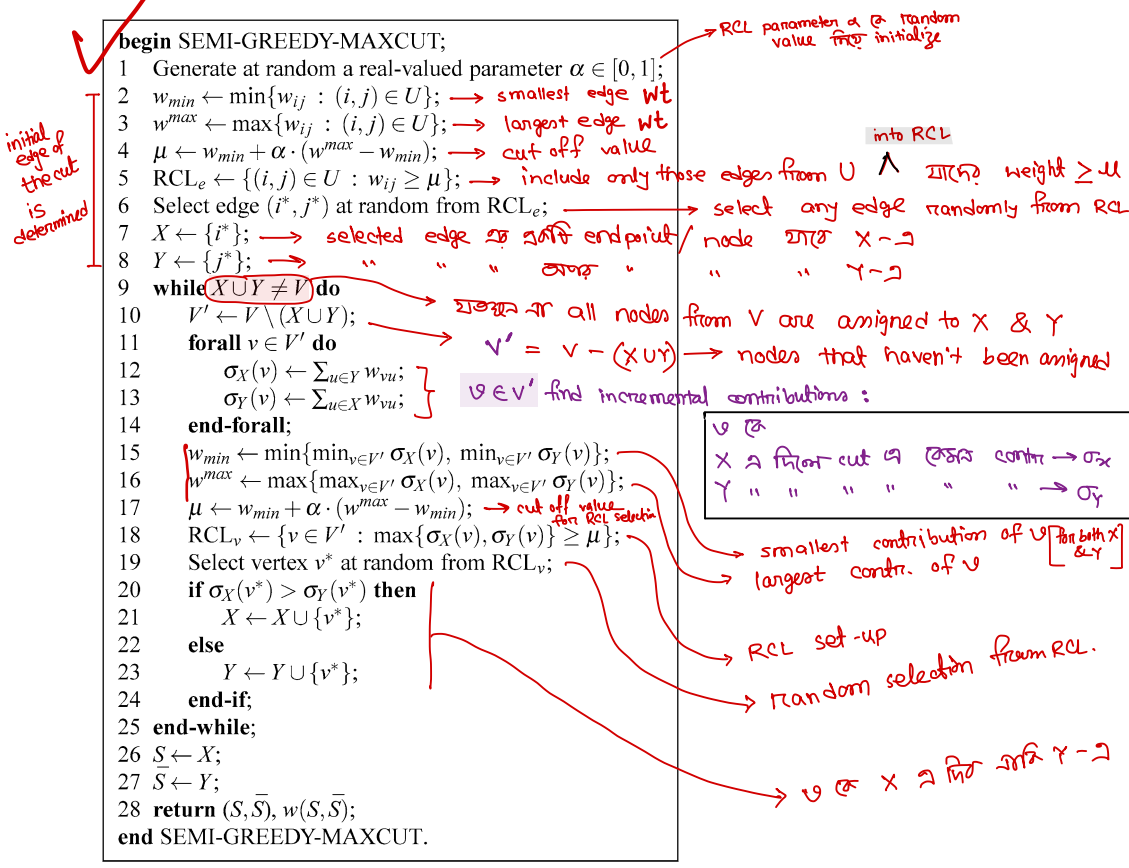

Fig. 12.12 Pseudo-code of the semi-greedy GRASP construction phase algorithm for the MAX-CUT problem.

nodes whose value of the greedy function is greater than or equal to μ. A node v is randomly selected from the list. If $\sigma_X(v) > \sigma_Y(v)$, then node $v \in V'$ is placed in X; otherwise it is placed in Y.

The pseudo-code of the semi-greedy GRASP construction procedure for the maximum cut problem is shown in Figure 12.12. The restricted candidate list parameter α is generated at random in line 1. The initial edge of the cut is determined in lines 2 to 8. Lines 2 and 3 determine the smallest and largest edge weights w_{min} and w^{max}, respectively. The cutoff value μ is computed in line 4 and the restricted candidate list RCL_e is set up in line 5. Finally, in line 6, edge (i^*, j^*) is randomly selected from RCL_e and each endpoint of the selected edge is assigned in lines 7 and 8.

The while loop in lines 9 to 25 builds the remainder of the cut. It stops when a cut (X, Y) is on hand, i.e., when $X \cup Y = V$. In line 10, the set V' of candidate vertices still to be added to each side of the cut under construction is determined.