Algorithm 2: The inference process of Preferential Labeling

Data: G: the input graph dataset; K the sampling times; GNN the GNN model
Result: Y: the outputs of GNN

highestProb $= 0$
$Y =$ None
$i = 0$
while $i < K$ **do**
    i += 1
    // randomly permute G
    PG $=$ randomPermute(G)
    // feed the permuted graph to GNN and get the output probabilities
    $y =$ GNN(PG)
    // compute the product of node probabilities (for each node, we select the highest probability among all classes)
    prob $=$ product(y)
    if *prob* $>$ *highestProb* **then**
        highestProb $=$ prob
        $Y = y$
    end
end
return Y