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**Algorithm 2.1** EDMONDS-KARP

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*Input.* Network  $N = (G, c, s, t)$  with  $c : A \rightarrow \mathbb{N}$ .

*Output.*  $s - t$ -flow  $f$  of maximum value.

Step 1. Set  $f(e) = 0$  for all  $e \in A$ .

Step 2. Find a shortest  $f$ -augmenting path  $P$  w.r.t. the number of edges. If none exists then return  $f$ .

Step 3. Compute

$$\alpha = \min\{c(e) - f(e) : e \text{ forward edge in } P\} \cup \{f(e) : e \text{ backward edge in } P\}.$$

and augment  $f$  by  $\alpha$  along  $P$ . Go to Step 2.

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