## Exercise for the lecture

## Algorithms for Radio Networks

## Winter 2011/12

Sheet 12

## EXERCISE 12:

1. Consider the following network graph where the numbers at the edges denote the edge capacities.


- Find the maximum flow from the source $S$ to the destination $D$ by applying the EdmondsKarp algorithm. Show the path found during each step from $S$ to $D$ in separate figure.
- Find the minimum cut in the network graph given above.

2. Consider the functions $P_{s}(t)=2(\sin (t)+1)$ and $P_{c}(t)=\cos (t)^{2}$.

- Prove that these functions describe benign energy sources and benign energy demand by computing the parameters $\rho_{1}, \rho_{2}, \sigma_{1}, \ldots, \sigma_{4}$.
- Compute the minimum initial energy $B_{0}$ such that there is continuous operation in the ideal setting.
- Assume $\eta=0.4$ and no energy leakage. Is it possible to operate this node continuously?

