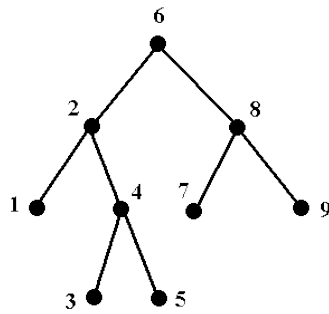


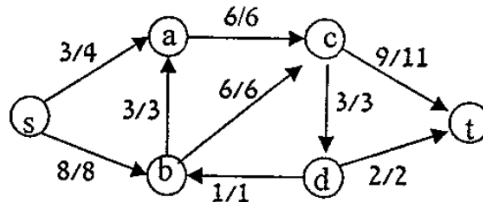
Name: .....

1. Determine the Prüfer code of the following labeled tree.



2. Using the Havel–Hakimi-algorithm, decide whether the following sequence can be realized by a simple graph or not: 5, 5, 5, 4, 2, 1, 1, 1.

3. Consider the network in the figure ( $s$  is the source,  $t$  is the sink; and the label of an edge  $e$  is  $f(e)/c(e)$  where  $f$  is a feasible flow,  $c$  is the capacity function).



- a) Determine the value of the flow  $f$ .
- b) Find an augmenting path (with respect to  $f$ ), and augment the flow using the path.