Laboratory for Theoretical Computer Science T-79.179 Parallel and Distributed Digital Systems Tutorial 7 2.& 3.3.2005

5.1 Consider the following P/T-net:



- a) Introduce minimal capacities which do not affect the behaviour of the net.
- b) Construct the matrix of this net.

5.2 Construct different coverability graphs for the following P/T-net:



5.4 Construct three different P/T-nets with equal coverability graphs.

5.5 Show that in the P/T-net of the exercise 5.2

a)  $\exists M' \in [M_N\rangle$  with (0, 5, 10) < M',

- b)  $\not\exists M' \in [M_N\rangle$  with (1,2,3) < M',
- c)  $\{s_2, s_3\}$  is simultaneously unbounded,

d) there exists no  $M_N$ -dead transitions.

5.6 Consider the following P/T-net:



a) Which subsets of places are simultaneously unbounded?b) Is the net live?

 $5.7\,$  Is the net in Exercise 5.2 live?