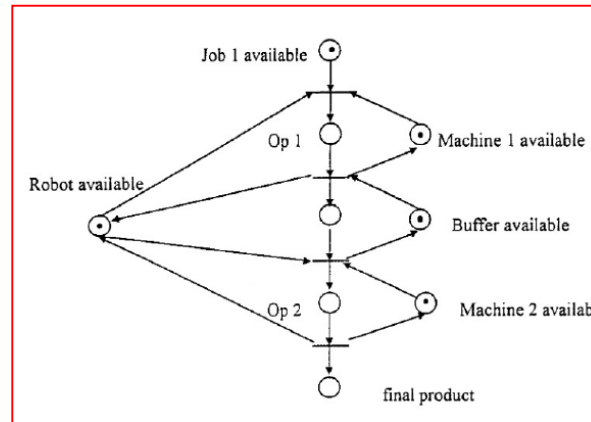


# Modellistica Reti di Petri

TABLE 8.1 Job Requirements for Example 1

Operations/Jobs	$J_1$	$J_2$
1	$(M_1R, 4)$	$(M_1, 1)$
2	$(M_2R, 1)$	$(M_2, 4)$

Ricetta 1



Ricetta 2

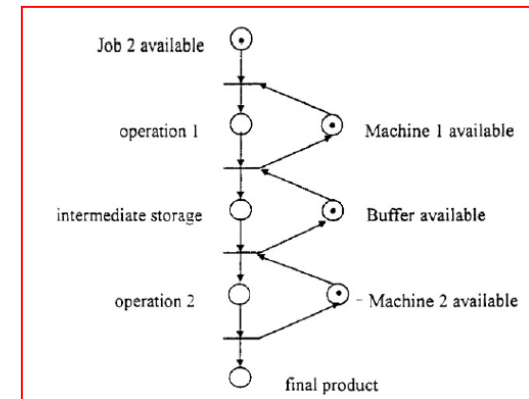


TABLE 8.2 Interpretation of Places and Transitions in Figure 8.3

Places	Transitions
$p_1$ : Job 1 available	$t_1$ : Operation 1 of Job 1 starts
$p_2$ : Job 2 available	$t_2$ : Operation 1 of Job 2 starts
$p_3$ : Operation 1 of Job 1	$t_3$ : Operation 1 of Job 1 finishes
$p_4$ : Operation 1 of Job 2	$t_4$ : Operation 1 of Job 2 finishes
$p_5$ : Job 1 ready for the second operation	$t_5$ : Operation 2 of Job 1 starts
$p_6$ : Job 2 ready for the second operation	$t_6$ : Operation 2 of Job 2 starts
$p_7$ : Operation 2 of Job 1	$t_7$ : Operation 2 of Job 1 finishes
$p_8$ : Operation 2 of Job 2	$t_8$ : Operation 2 of Job 2 finishes
$p_9$ : Final product of Job 1	
$p_{10}$ : Final product of Job 2	
$p_{11}$ : Buffer of Job 1 available	
$p_{12}$ : Buffer of Job 2 available	
$p_{13}$ : Machine 1 available	
$p_{14}$ : Machine 2 available	
$p_{15}$ : Robot available	

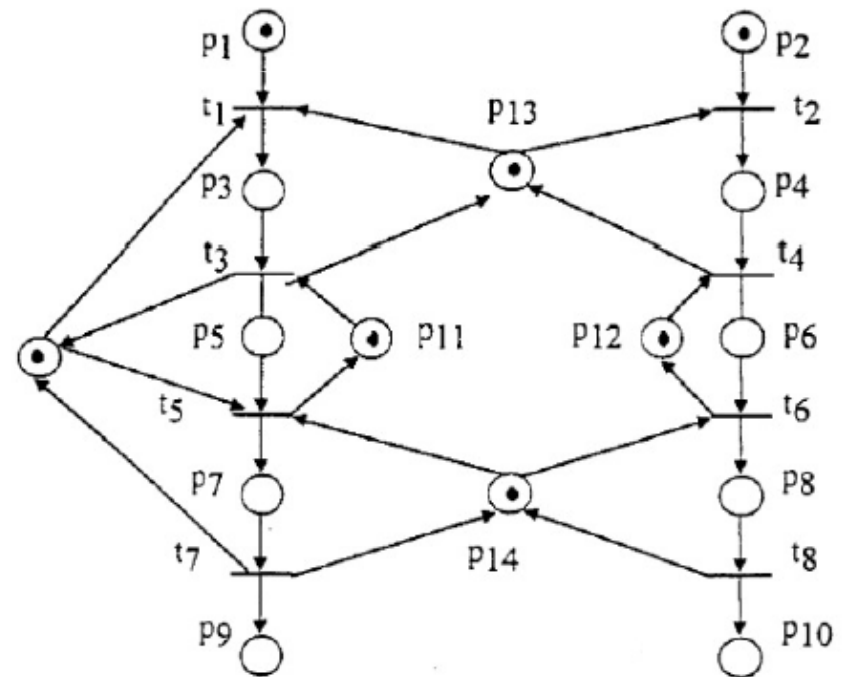


FIGURE 8.3 The whole Petri net model.



FIGURE 8.4 A partial portion of the reachability graph for the Petri net model shown in Figure 8.3.

Machine 1	O <sub>1,1,1</sub> (4)	O <sub>2,1,1</sub> (1)	
Machine 2		O <sub>1,2,2</sub> (1)	O <sub>2,2,2</sub> (4)
makespan	9		

(a) transition firing sequence t<sub>1</sub>t<sub>3</sub>t<sub>2</sub>t<sub>5</sub>t<sub>4</sub>t<sub>7</sub>t<sub>6</sub>t<sub>8</sub>

Machine 1	O <sub>2,1,1</sub> (1)	O <sub>1,1,1</sub> (4)	
Machine 2		O <sub>2,2,2</sub> (4)	O <sub>1,2,2</sub> (1)
makespan	6		

(b) transition firing sequence t<sub>2</sub>t<sub>4</sub>t<sub>1</sub>t<sub>6</sub>t<sub>3</sub>t<sub>8</sub>t<sub>5</sub>t<sub>7</sub>

FIGURE 8.5 Schedules represented by two different transition firing sequences.

TABLE 8.5 Job Requirements

Operations/Jobs	$J_1$	$J_2$	$J_3$	$J_4$
1	$(M_1, 2)$	$(M_3, 4)$	$(M_1, 3)$	$(M_2, 3)$
2	$(M_2, 3)$	$(M_1, 2)$	$(M_3, 5)$	$(M_3, 4)$
3	$(M_3, 4)$	$(M_2, 2)$	$(M_2, 3)$	$(M_1, 3)$

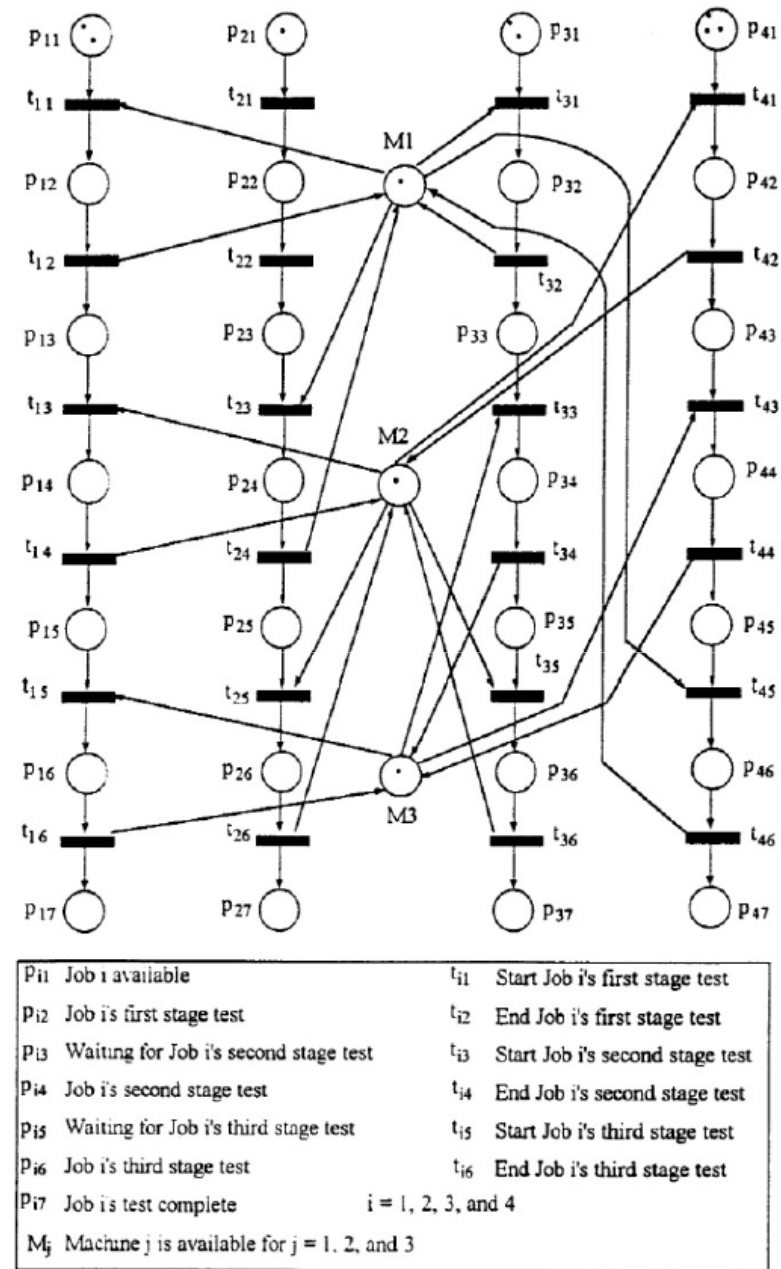


FIGURE 8.7 A Petri net model of a test facility.