

IME625: Stochastic Processes

2021-22 Sem-II

Homework-11

Consider the Markov Chain shown to the right. Decompose its states into communicating blocks and identify nature of the states. Think of a generic method for decomposing a Markov chain into communicating blocks. Is it possible to decompose a Markov chain in two different manners?

p_{ij}	1	2	3	4	5	6	7
1	1/3	2/3	0	0	0	0	0
2	1/4	3/4	0	0	0	0	0
3	0	0	1/3	0	2/3	0	0
4	0	0	1	0	0	0	0
5	0	0	1	0	0	0	0
6	1/6	0	1/6	1/6	0	1/4	1/4
7	0	0	0	0	0	0	1