SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

DDL: 14:00 Thursday of the thirteenth academic week (May 15th) .

The homework contains 3 questions and the score is 100 in total.

1. (25 marks) Given a Markov transition probability matrix P (row stochastic). Prove that P^n is a stochastic matrix for any $n > 0$.

2. (25 marks) Given a Markov transition probability matrix P (row stochastic). Prove that
$$P^n = P^{n-m} P^m$$

3. (50 marks) Work out a survey paper (3pp+) on PageRank and explain in detail the probabilistic modeling in PageRank.

Hint: You can reasonably use any AI tools to assist you in completing your homework. Attention: Please submit ONLY the PDF of your homework to

jzlisustc@gmail.com to keep record.