

09-14-Discrete

Created on 20241208.

Last modified on 2024 年 12 月 8 日.

目录

Chapter 1 Introduction

包括：组合数学，combinatorics

图论

Chapter 2 combinatorics

组合数学，离散数学

广义的组合数学就是离散数学，狭义的组合数学是离散数学除图论、代数结构、数理逻辑等的部分。

狭义的组合数学主要研究满足一定条件的组态（也称组合模型）的存在、计数以及构造等方面的问题。组合数学的主要内容有组合计数、组合设计、组合矩阵、组合优化（最佳组合）等。

Chapter 3 组合分析

Chapter 4 组合设计

Chapter 5 组合几何

Chapter 6 编码理论 (代数码理论)

Chapter 7 图论

7.1 elementary

7.1.1 basic definition

adjacent: vertexes u and v are adjacent, when there is an edge joining them.

incident: vertex u is the end of the edge e , then u is incident to e .

loop: an edge from vertex u to u .

parallel: two paths with the same vertex lists.

simple graph: no loop, no parallel edges.

order: number of vertices.

finite: the number of vertices is finite, and the number of edges is finite.

7.1.1.0.1 graph a triplet $\{V, E, \phi\}$, where V is the vertex set, E is the edge set, ϕ is the incidence function $\phi: V \times V \rightarrow E$

Each vertex represents an object, each edge represents a relationship.

7.1.1.0.2 isomorphic

7.1.1.0.3 subgraph

7.1.1.0.4 complete graph a complete graph with n vertices is noted as K_n , all vertices are adjacent each other. The number of edges is C_n^2

7.1.2 图论的应用