INTRODUCTION

Transformation semigroups are of interest and important in the field of semigroups (every semigroup can be embedded in the full transformation semigroup on some set, and every inverse semigroup can be embedded in the 1-1 partial transformation semigroup (the symmetric inverse semigroup) on some set). In this thesis, we study some local property of transformation semigroups. Locally factorizable transformation semigroups are characterized. The problem of characterizing factorizable transformation semigroups was investigated by Tirasupa and Kemprasit in [7] and [5], respectively. These characterizations are helpful in characterizing locally factorizable transformation semigroups in this thesis.

The preliminaries and notation used for this work are given in Chapter I. We give general properties of locally factorizable semigroups in Chapter II.

Chapter III and Chapter IV are the main results of the thesis. In Chapter III, we characterize locally factorizable transformation semigroups. We prove in Chapter IV that for any positive integer n and for any field F, the multiplicative semigroup of all n×n matrices over F (which is a transformation semigroup on F^n) is locally factorizable.