INTRODUCTION

Absolutely closed semigroups have been long and widely studied (e.g., [1],[2],[3],[4],[5],[6] and [7]). Semigroups of certain types were shown to be absolutely closed. It is well-known that every inverse semigroup is absolutely closed. In particular, every group is absolutely closed. Transformation semigroups are considered important in the area of semigroups. Since every inverse semigroup is absolutely closed, it follows that the symmetric group and the symmetric inverse semigroup on any set are absolutely closed. It was proved differently in [2],[3],[4] and [5] that the full transformation semigroup on any set is absolutely closed. Some proofs that the partial transformation semigroup on any set is absolutely closed were also given in [5] and [6].

It is unknown whether an ideal of an absolutely closed semigroup is absolutely closed ([7]).

The main purpose of this research is as follows:

(1) give a generalization of the result that "the full transformation semigroup and the partial transformation semigroup on any set are absolutely closed" and

(2) introduce some other well-known transformation semigroups which are absolutely closed.

To get (1), we prove that every ideal of the full transformation semigroup and of the partial transformation semigroup on any set is absolutely closed. It follows from this that for any set X, the partial transformation semigroup on X, the full transformation semigroup on X,

the transformation semigroup of all constant partial transformations of X and the transformation semigroup of all constant transformations of X are absolutely closed. For (2),we show that for any set X, the transformation semigroup of all almost identical partial transformations of X and the transformation semigroup of all almost identical transformations of X are absolutely closed.

The preliminaries and notation used for this work are given in Chapter I. In Chapter II, we characterize some certain semigroups which are absolutely closed. Chapter III gives the main results of this thesis which are mentioned above. In Chapter IV, we introduce some certain transformation semigroups on a set X which are closed in the semigroup of binary relations on X, but we leave as an open problem whether they are absolutely closed.