INTRODUCTION

The concept of a complex over an algebra arose as an abstraction from the cohomology theory of manifolds. The fundamental step towards this was taken by De Rham. Therefore, the investigation in the theory of complexes over an algebra was natural. In 1953 Kahler [5] constructed a universal complex over an algebra A. Many attempts have been made [2], [10], [11], [12] to determine universal complex of various algebras, especially by means of universal complex preserving functors. It is natural to investigate the relationships between the category of algebras and the category of complexes.

In this dissertation the natural functor from the category of complexes to the category of algebras is considered and it is shown that the functor has an opcleavage and a normalized split cleavage. The similar results have been obtained for the category of derivation modules and the category of anticommutative graded algebras.

As a by-product of this, it is seen that any algebra homomorphism f from A to B gives rise to a functor from the category of A-complexes to the category of B-complexes,

which is a left adjoint, preserves not only initial object but all colimits, which generalizes the result [2].

In the final Chapter, it is shown that the forgetful functor from the category of complexes to the category of anticommutative graded algebras is cleavage-preserving and opcleavage preserving. The similar result is obtained for the functor from the category of complexes to the category of derivation modules and for the inclusion functor from the category of derivation modules to the category of complexes.