

ABSTRACT

This thesis is devoted to study the removable cycles of graphs and digraphs. The removable cycle has been defined as: if \mathfrak{S} is a class of graphs, $G \in \mathfrak{S}$, the cycle C in G is called edge removable if $G - E(C) \in \mathfrak{S}$. The edges removable cycle of eulerian graphs have been studied. We characterized eulerian graphs which contain edge disjoint removable cycles. Further, the edge removable cycle of eulerian digraphs has been also studied. The vertex removable cycle of eulerian graphs has been studied. The odd and even vertex removable cycles of eulerian graphs (digraphs) are characterized. The necessary and sufficient condition for regular graphs (digraphs) to have an edge (vertex) removable cycle have been characterized.