UNIVERSITI TEKNOLOGI MARA

POSITIVE SOLUTIONS TO SECOND ORDER BOUNDARY VALUE PROBLEMS

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of the requirements for the degree of
Master of Science

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

This thesis is concerned with the existence of positive solutions for second order boundary value problems. In particular, firstly we investigate the existence and multiplicity of positive solutions for a singular second order scalar Sturm-Liouville boundary value problem with different values of λ for a function f involve u. Then, we investigate the existence of positive solutions of a Dirichlet boundary value problem where the function f involve u and u'. Lastly, we consider the results of positive solutions for singular Dirichlet second order boundary value problem where the function f involve u and u' in terms of different values of λ. The existence results of positive solutions are proved by applying the Krasnosel'skii fixed point theorem on compression and expansion of cones.

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