

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**SOLVING ONE DIMENSIONAL BRATU TYPE
EQUATION USING RUNGE-KUTTA TECHNIQUE
AND ADOMIAN DECOMPOSITION TECHNIQUE**

P45S19

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

The research aims to determine the effective numerical solution of Bratu equation. Rather than calculated the exact solution, it has been solving numerically by using Runge-Kutta Method and Adomian Decomposition Method. Parametric study of vary lambda (λ) and step size h was conducted and had been observed. However, boundary value problem of Bratu equation is then fixed from 0 to 1. Hence, these two numerical techniques are then compared with the exact solution. The least absolute error significantly defines the highest accuracy.