Table 4.7 Comparison of Mass Fraction of Fuel Burnt Between Diesel Oil and Karanja Biodiesel (Reproduced From Figures 4.91-4.96)	205
Table 4.8 Comparison of Mean Gas Temperature of Karanja Biodiesel With that of Diesel Oil (Reproduced From Figures 4.97-4.102)	211
Table 4.9 Comparison of Cumulative Heat Release of Karanja Biodiesel With that of Diesel Oil (Reproduced From Figures 4.106-4.111)	220
Table 5.1 Upper and Lower Bounds for Constraints	234
Table 5.2 Polynomials for Thermal Performance Parameters with their Respective R <sup>2</sup> Values	235
Table 5.3 Polynomials for Emission Constituents with their Respective R <sup>2</sup> values	240
Table 5.4 Weightages For Thermal Performance and Emissions In Multi objective Optimization.	247
Table 5.5 Neural Network Input Output Sample Data for Engine Thermal Performance	249
Table 5.6 Input Output Sample Data of Emission Constituents For Neural Network	250
Table 5.7 Details Used to Model the Neural Network	252
Table 5.8 Errors for Different Architectures of Neural Network	255
Table 5.9 Training and Test Errors for Neural Network Architectures	257
Table 5.10 Neural Network Modeling for Emission Constituents	259
Table 5.11 Neural Network Architecture & Corresponding Training Results for Gas Emissions	262
Table 5.12 Training and Test errors for Different Architectures	263
Table 5.13 Comparison of Results of ANN Model and Experimental Data for Thermal Performance	
Table 5.14 Comparison of Results of ANN and Experimental Data for Emission Constituents	266
Table 5.15 Output Parameters Corresponding to CR, IP and Blend of 18, 228bar and B70	267
Table 5.16 Comparison of Thermal Performance and Emission Constituents for Diesel Oil, B70 a Karanja Biodiesel	
Table II.1 Summary of Review Related Studies Carried Out On Biodiesels	.282
Table III.1 to III.8 Thermal Performance and Exhaust emission data of the present experimental study283 to	291
TableVI.1 Summary of Studies Carried out on Production of Biodiesels	.304
Table VII.1 Probable errors in the estimation of thermal performance of diesel engine running of diesel biodiesel blends	
Table VII 2 Pecalution and Pange of Cas analyzer for the emission constituents	212