CHAPTER V

CONCLUSIONS AND SUGGESTIONS FOR FUTURE WORK

Conclusions

1. The properties of the blended fuels were tested according to ASTM method and the results are within standard levels. The octane numbers of Fuel1 and Fuel2 are 91-92 which are equal to those of unleaded regular gasoline samples.

2. More advanced spark timing corresponded to higher exhaust emissions.Thus, spark timing of 7 °BTDC was chosen to do the next experiment to analyze the exhaust emissions produced by various fuels.

3. The low speed give the high exhaust emissions. Thus the low speed at 800 rpm is chosen as operating condition for the experiment according to item no. 2, too. The speed at 800 rpm was assumed to be similar to the speed of cars during a traffic-jam.

4. Percent volume of carbon monoxide in exhaust emissions of Fuel1 and Fuel2 are lower than those of CG1-CG6. Concentration of hydrocarbon in Fuel1 and Fuel2 are lower than those of CG1-CG2 that are unleaded regular gasolines (octane number = 92) but are higher than those of CG3-CG6 that are unleaded premium gasolines (octane number = 97). These indicate that quality of Fuel1 and Fuel2 are better than commercial gasoline samples which are of

the same octane number but are lower than commercial gasoline samples which are higher octane number.

5. Compositions and the concentrations of individual hydrocarbons in emissions produced by Fuel1 are shown in Table 4.6. Running the engine at the low speed, for example at speed = 800 rpm, the emission of all hydrocarbons are high, in particular, isobutane and toluene are the two highest. Running at higher speed (speed = 1500 rpm), reduces the emissions of all the detectable hydrocarbons.The reductions in the concentrations of benzene, toluene and xylene are the greatest with all three aromatics nearly disappearing from the emission.

Suggestions for Future Work.

1. The fuel blends should be tested with chassis dynamometer. With is measurement, the exhaust gases can be monitored as they are emitted from real driving.

2. The evaporation emission test at diurnal and hot soak should be studied.

3. The exhaust emission from the car with and without a catalytic converter should be compared.