UNIVERSITY OF RUHUNA

Faculty of Engineering

Mid -Semester 4 Examination in Engineering: October 2015 (Repeat)

Module Number: ME4225Module Name: Automobile Engineering

[Two Hours]

[Answer**all questions**, each question carries **five** marks]

Q1. **(a)** How does a two-stroke engine produce almost twice the power of a four stroke engine? Does it really happen?

[3 marks]

(b) What is the main advantage of a two-stroke CI engine over a two-stroke SI engine?

[1 mark]

(c) What are the basic differences between SI and CI engines?

[1 mark]

Q2. **(a)** Make a neat sketch showing the components of a dry sump method of lubrication. Explain its working.

[2.5 marks]

(b) List and briefly explain five properties of lubricationoil.

[2.5 marks]

Q3. **(a)** Name different methods of engine cooling systems. Explain in detail air cooling method.

[3 marks]

(b) What is the necessity of using thermostat in the liquid cooling system of an IC engine?

[1mark]

(c) With neat sketches discuss the construction and working of thermostat used in an IC engine.

[1 mark]

Q4. **(a)** Define the BrakeThermal Efficiency of an IC engine. **[1 mark]**

(b) The output from a car engine is 80 kW. The brake thermal efficiency of the engine is 25% and heat lost to the coolant is 30% of the heat supplied by the combustion of fuel. If the specific heat of water C_p is 4.13 kJ/kg.K;

(i) How much heat should be dissipated from the radiator of the car to the atmosphere?

(ii) Estimate the quantity of water to be circulated for proper engine cooling if the engine coolant (water) is to be cooled in the radiator from 353 K to 303 K.

[4 marks]