



UNIVERSITY OF RUHUNA

Faculty of Engineering

Mid - Semester 7 Examination in Engineering: June 2014

Module Number: ME 7363

Module Name: Energy Technology

[Two Hours]

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

- Q1. a) List out the types of biofuels available in the world. State five (05) advantages and five (05) disadvantages of bio-fuels over non-renewable energy. [3 Marks]
- b) What are the four available methods for extracting energy from biomass? [2 Mark]
- Q2. a) What are the direct biomass combustion technologies used in the industry? [2 Marks]
- b) Discuss what you understand by biomass gasification. With the aid of neatly drawn sketch briefly explain the operation of downdraft gasifier. [3 Marks]
- Q3. a) "Coal is a plentiful but dirty fuel". With the use of relevant examples in the world justify the above statement with regard to the environmental and air pollution. [3 Marks]
- b) Explain the process of producing methanol or synthetic gasoline by coal liquefaction. [2 Marks]
- Q4. a) With the aid of clearly drawn sketch brief explanation the "Green House Effect" and how does it lead to "Global Warming". [3 Marks]
- b) Name three (03) Green House Gases (GHG) emitted to the atmosphere and state the main human activity source responsible for generation of each of the GHG. [2 Marks]