



# KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS  
2016/2017 ACADEMIC YEAR

SECOND YEAR FIRST SEMESTER  
SPECIAL/SUPPLEMENTARY EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN RENEWABLE ENERGY AND  
BIOFUELS TECHNOLOGY

**COURSE CODE: IET 111**

**COURSE TITLE: SURVEY OF ENERGY SOURCES**

**DURATION: 2 HOURS**

**DATE: 18<sup>TH</sup> SEPTEMBER 2017 TIME: 11:30AM – 1:30PM**

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### INSTRUCTIONS TO CANDIDATES

- Answer **QUESTION ONE** (Compulsory) and any other two (2) Questions.
- Indicate **answered questions** on the front cover.
- Start every question on a new page and make sure question's number is written on each page.

This paper consists of 2 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

### Question One

- (a) Clearly differentiate the energy categories, giving examples(16 Marks)  
(i) Primary and Secondary energy  
(ii) Commercial and Non-commercial energy
- (b) State the sectors into which energy consumption is normally divided(4 marks)
- (c) (i) Name the different sources of biomass (4 Marks)  
(ii) With the aid of a diagram explain the carbon cycle (6 Marks)

### Question Two

- (a) State any **Seven** renewable energy sources (7 Marks)
- (b) (i) State which types of renewable energy are solar in origin(3 Marks)  
(iii) Explain why they are solar in origin (10 Marks)

### Question Three

- (a) Explain the difference between renewable energy and renewable energy **technology** (8 Marks)
- (b) Explain the following terms  
(i) What are photovoltaics(2 Marks)  
(ii) Solar thermal electricity(2 Marks)
- (c) State the difference between renewable energy **inputs and outputs** (8 Marks)

### Question Four

State and explain briefly operation of any four power plants (20 Marks)

### Question Five

Explain how the usage of energy resources in industry leads to environmental damages by polluting the atmosphere. (20 Marks)