



16

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER
SPECIAL / SUPPLEMENTARY EXAMINATIONS

FOR THE BACHELOR OF RENEWABLE ENERGY AND BIOFUELS
TECHNOLOGY

COURSE CODE: IET 423

COURSE TITLE: SUSTAINABLE ARCHITECTURE

DURATION: 2 HOURS

DATE: 03/10/2018

TIME: 3:00-5:00PM

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



QUESTION 1 (30 marks)

- a. Explain any five (5) examples of bioenergy applications (15 marks)
- b. Describe any five (5) sustainable building techniques (15 marks).

QUESTION 2 (20 marks)

- a. Describe how a ground source heat pumps works (10 marks).
- a. Explain any five (5) passive solar design principles (10 marks).

QUESTION 3 (20 marks)

- a. Describe how Rammed earth and cob structures are constructed (10 marks).
- b. Describe any five (5) categories of heat exchangers in industrial heat recovery systems (10 marks)

QUESTION 4 (20 marks)

- a. Define the following terms: MicroCHP, Sun path diagrams, Azimuth, solar altitude angle and Zenith (10 marks).
- b. Describe any five (5) ways of ensuring home energy efficiency (10 marks).

QUESTION 5 (20 marks)

Compare and contrast BREEAM & Eco homes design aspects and ZED principles.