



20

(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018 ACADEMIC YEAR

THIRD YEAR 1ST SEMESTER MAIN EXAMINATION

**FOR THE DEGREE OF BACHELOR OF SCIENCE RENEWBLE
ENERGY**

COURSE CODE: SUT 371

COURSE TITLE: PRINCIPLES OF BIOTECHNOLOGY

DATE: 15th January 2018

TIME: 9:00 – 11:00 a.m.

INSTRUCTIONS TO CANDIDATES

Answer Question one (1) and any other two (2) Questions. Question one is compulsory and carries 30 marks, the other Questions carry 20 marks each.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

Question 1

- a) Define the following terms:
 - i. Traditional biotechnology (2 mark)
 - ii. Stem cell (2 mark)
 - iii. Totipotent cells (2 mark)
 - iv. Gene cloning (2 mark)

- b) List and briefly describe the physical transfection techniques in animals (8 marks)

- c) List five items considered as products of biotechnology and explain how they are made. (4 marks)

- d) List examples of definitions of biotechnology and explain how these help to explain why it's considered a multidisciplinary subject. (4 marks)

- e) Outline the applications of biotechnology in green energy. (6 marks)

Question 2

Discuss the safety and ethical issues associated with biotechnology (20 Marks)

Question 3

Describe the techniques used to deliver transgenes into plants. (20 Marks)

Question 4

Describe how sterile conditions are maintained in tissue culture and their significance. (20 Marks)

Question 5

Discuss the applications of biotechnology in energy and agricultural sectors (20 Marks)