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*(Knowledge for Development)*

**KIBABII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**  
**2017/2018 ACADEMIC YEAR**

**THIRD YEAR 1<sup>ST</sup> SEMESTER**  
**SPECIAL/SUPPLEMENTARY EXAMINATIONS**

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

**COURSE CODE: SUT 371**

**COURSE TITLE: PRINCIPLES OF BIOTECHNOLOGY**

**DATE: 8/10/2018**

**TIME: 11:30-1:30PM**

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**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. Biotechnology (2 marks)
  - ii. Transduction (2 marks)
  - iii. Conjugation (2 marks)
  - iv. Genetically modified organism (2 marks)
- b) Differentiate between the following terms as used in biotechnology:-
- i. DNA and RNA (4 marks)
  - ii. Transcription and translation (4 marks)
  - iii. Homozygous and heterozygous conditions (4 marks)
- c) Summarize ways in which biotechnology is employed for bioremediation using microbes (6 marks)
- d) List five items considered as products of biotechnology and explain how they are made. (4 marks)

### **Question 2**

Discuss how biotechnology is used to improve animal and plant production. (20 marks)

### **Question 3**

Using relevant illustrations explain in clear, but brief terms, what the central dogma entails. (20 marks)

### **Question 4**

Describe single cell proteins manufacturing (20 marks)

### **Question 5**

Describe the developmental phases of biotechnology to the present. (20 Marks)