



50

KIBABII UNIVERSITY

**UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR**

**FIRST YEAR FIRST SEMESTER MAIN EXAMINATION
FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN AGRICULTURE AND
BIOTECHNOLOGY**

COURSE CODE: SBL 112

COURSE TITLE: INTRODUCTION TO BIOTECHNOLOGY

DATE: 15th January 2018

TIME: 9:00 – 11:00 a.m.

INSTRUCTIONS TO CANDIDATES

Answer Question One **compulsory (30mks)** and any other Two Questions **(20mks)** each.

TIME: 2 Hours

KIBU observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over. ►

QUESTION ONE (30 MKS)

- a) Define the following terms
 - (i) Gene
 - (ii) Genome
 - (iii) Mutation
 - (iv) Biotechnology
 - (v) Bioethics (5 marks)
- b) Explain why the genetic code is said to be “degenerate” (5 marks)
- c) Briefly describe the process of Agrobacterium mediated gene transfer in plants (5 marks)
- d) Briefly describe any 5 types of biotechnology (5 marks)
- e) Briefly describe the 3 steps of a PCR reaction (5 marks)
- f) Highlight the roles of National Biosafety Authority (NBA) in regulation of Genetically modified organisms in Kenya. (5 marks)

QUESTION TWO

Discuss the application of biotechnology in the areas of agriculture, medicine, environment and food industries. (20 marks)

QUESTION THREE

Discuss any FIVE physical methods of gene transfer (20 marks)

QUESTION FOUR

Define gene mutation and discuss the effects of various types of mutations on genes and gene products. Use illustrations where possible (20 marks)

QUESTION FIVE

- i. Discuss the benefits of biotechnology in agriculture and human health (10 marks)
- ii. Discuss some of the ethical concerns and issues in the application and use of biotechnology (10 marks)