

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2018/2019**

**EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOTECHNOLOGY**

**HBB 2312: PHARMACEUTICAL BIOTECHNOLOGY I**

**DATE: DECEMBER 2018 TIME: 2 HOURS**

INSTRUCTIONS: Answer question one and any other two questions.

QUESTION ONE (30 MARKS)

a. Explain three methods of genetic recombination. (6 marks)

b. Explain three importance of pharmaceutical biotechnology in the contemporary industrial sector. (6 marks)

c. Explain invitro mechanisms of genetic transfer using basteriophage. (6 marks)

d. Explain principle and significance of blue white screening in industrial biotechnology.

 (6 marks)

e. Describe somatic cell nuclear transfer procedure using an example of a case study.

 (6 marks)

QUESTION TWO (20 MARKS)

Discuss gene libraries and procedure involved in their creation.

QUESTION THREE (20 MARKS)

Discuss industrial cloning technology as applicable in insulin production.

QUESTION FOUR (20 MARKS)

Discuss industrial production for growth hormones and vaccines.