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

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

# **UNIVERSITY EXAMINATIONS 2018/2019**

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY

**HBB 2415: TRANSGENIC PLANTS AND ANIMALS**

DATE: DECEMBER 2018 TIME: 2 HOURS

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**INSTRUCTIONS:**

**ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

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**QUESTION ONE [COMPULOSRY] [30 MARKS]**

1. Explain by the use of an illustration the use of restriction enzymes that produce sticky ends as a tool in rDNA technology [5 marks]
2. Compare and contrast the following terms [10 marks]
3. cDNA and gene
4. DNA polymerase and DNA ligase
5. Microinjection and electroporation
6. Biotechnology and genetic modification
7. Ti plasmid and R.plasmid
8. Explain the use of PCR as a tool for testing the success of genetic recombination [5 marks]
9. Outline the concept of DNA vaccines as a therapeutic application of rDNA technology. [5 marks]
10. What characteristics of plasmids make them suitable vectors in rDNA technology. [3 marks]
11. Why must animals be modified at the embryo stage to arrive at successful outcomes during genetic modification. [2 marks]

**QUESTION TWO [20 MARKS]**

1. Illustrate be means of well labeled diagrams, a typical genetic modification procedure. [10 marks]
2. Illustrate the blue and white screening protocol to ascertain successful or unsuccessful cloning experiments. [10 marks]

**QUESTION THREE [20 MARKS]**

What are the ethical and biological considerations when using transgenic animals

to manufacture various human products? Cite specific examples [20 marks]

**QUESTION FOUR [20 MARKS]**

Discuss the development of transgenic variety of wheat by the use of biolytic

delivery method and the agro bacterium medicated gene transfer [20 marks]