

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

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2019/2020**

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE**

**SBT 2210: INTRODUCTION TO MOLECULAR BIOLOGY**

**DATE: DECEMBER, 2019 TIME: 2 HOURS**

INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

**QUESTION ONE: 30 MARKS**

a. List two features of the DNA structure that contribute towards its stability. (2 marks)

b. Illustrate how a 3’ overhang can be produced after a restriction enzyme digest. (3 marks)

c. Briefly outline applications of biotechnology in the field of medicine. (6 marks)

d. Briefly explain the importance of a final extension step at the end of a PCR reaction. (4 marks)

e. Compare and contrast DNA and RNA isolation. (6 marks)

f. Briefly outline the function of each of the following:-

 i. Intercalating dye. (2 marks)

 ii. Taq polymerase. (3 marks)

g. Outline four precautions that would enable isolation of high quality genomic DNA. (4 marks)

**QUESTION TWO: 20 MARKS**

Discuss DNA sequencing

**QUESTION THREE: 20 MARKS**

Describe the principles of DNA fingerprinting.

**QUESTION FOUR: 20 MARKS**

Outline the process used in the identification of proteins.