



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE

SBT 505: MOLECULAR GENETICS

DATE: Tuesday 29th November 2011

TIME: 9.00a.m – 12.00p.m

INSTRUCTIONS: Answer any *FOUR* questions. All questions carry 25 marks each.

1. (a) Discuss various methods of DNA sequencing.
(b) Discuss characteristics of a good cloning vector
2. Write an essay on recombination in bacteria and its application in molecular genetics.
3. Enzyme *Bam*HI recognizes hexanucleotide sequence 5'GGATCC3' and cuts at palindromes between G and G. Enzyme *Sma*I recognizes hexanucleotide sequence 5'CCCGGG3' and cuts at palindromes between C and G. Use this information and illustrations to explain how a recombinant DNA (rDNA) can be constructed from:
 - a. Sticky ended fragments
 - b. Blunt ended fragments
4. Describe restriction fragment length polymorphism (RFLP) analysis and Polymerase chain reaction (PCR) technique as applied in molecular biology.
5. Write an essay on genetic markers.