KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (CROP IMPROVEMENT AND PROTECTION)

KST 207: PRINCIPLES OF MOLECULAR BIOLOGY

DATE: TUESDAY, 3RD APRIL 2012 TIME: 11.00 A.M- 1.00 P.M

INSTRUCTIONS:

SECTION A: ANSWER ALL QUESTION (40 MARKS)

1. Explain the following acronyms dsDNA, ssDNA, cDNA, RNAP and SNP. [5 marks]
2. It is impossible to tell with precision how many genes a piece of DNA contains. Discuss [5 marks]
3. Define expression cloning giving an example of its commercial products. [5 marks]
4. Gene regulation is necessary. Explain its significance. [5 marks]

5. Scientist have synthesized the ssDNA hereunder.

   5'- CCAATTGGCCATCG-3'

   5'- GGTTAACC GGTAGC-3' [5 marks]

Giving reasons explain whether the two ssDNA will anneal to each other

6. Classify proteins based on their biological functions [5 marks]
7. List five macromolecule blotting techniques and their applications [5 marks]
8. Using illustrations define dominant and codominant DNA markers [5 marks]

SECTION B: ANSWER ANY TWO QUESTIONS (30 MARKS)

9. With illustrations discuss DNA synthesis and indicate which hypothesis is most plausible. [15 marks]
10. Describe PCR [15 marks]
11. Discuss genetic markers giving an example of at least one limitation in each.[15 marks]
12. " GMO products are indispensable and therefore have always been with us GMO registrations not withstanding" Discuss [15 marks]