SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

BCH 407: GENETIC ENGINEERING II

7TH DECEMBER, 2016 TIME:1.30-3.30 P.M

INSTRUCTIONS TO CANDIDATES

(a) Answer ALL the Questions in Section A
(b) Answer ANY TWO Questions in Section B
(c) Illustrate your answers with well labeled diagrams where appropriate

SECTION A (30 MARKS)

1. Briefly describe **three** types of mutation. (**3 marks**)
2. Distinguish between exonucleases and endonucleases. (**3 marks**)
3. List **three** similarities and differences each between RNA synthesis and DNA synthesis. (**3 marks**)
4. Explain the benefit of employing nested PCR. (**3 marks**)
5. Define the following terms
   a. Shuttle vectors (**2 marks**)
   b. Cosmid vectors (**2 marks**)
6. Briefly describe AFLP technique. (**3 marks**)
7. Outline **two**benefits and **one** disadvantage RAPD has over RFLP

technique. (**3 marks**)

8. List**four effects** of disease causing mutations on protein function. (**2marks**)

9. Briefly discuss the preparation of a vector plasmid. (**3 marks**)

10. Give **three** advantages and disadvantages each of genetic engineering. (**3 marks**)

SECTION B (40 MARKS)

11. Describe post translational modification of mRNA. (**20 marks**)

12. Describe the structure of DNA polymerase III in *E. coli*. (**20 marks)**

13. Discuss **five** types of PCR methods. (**20 marks**)

14. a. Describe the Ames test. (**10 marks**)

    b. Describe causes of mutation. (**10 marks**)