



# SOUTH EASTERN KENYA UNIVERSITY

## UNIVERSITY EXAMINATIONS 2017/2018

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

BCH 407: GENETIC ENGINEERING II

DATE: 5<sup>TH</sup> DECEMBER, 2017      TIME: 4.00-6.00 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
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#### SECTION A (30 MARKS)

1. Briefly describe
  - a) **three** types of point mutations. (3 marks)
  - b) **two** ways of quantifying mutations. (2 marks)
2. Outline **three** ways DNA replication ensures high fidelity. (6 marks)
3. List the characteristics exhibited by signal sequences. (4 marks)
4. a) Briefly describe the AFLP technique. (3 marks)
  - b) Enumerate **two** benefits and **one** disadvantage RAPD has over RFLP technique. (3 marks)

5. Give **an example** of a protein associated with monogenic diseases in the categories listed below.
- a) Transport and storage. **(1 mark)**
  - b) Enzyme defects. **(1 mark)**
  - c) Structure of cells and organs. **(1 mark)**
  - d) Control of growth and differentiation. **(1 mark)**
  - e) Intracellular metabolism and communication. **(1 mark)**
6. Briefly describe the advantages and disadvantages of genetic engineering. **(4 marks)**

**SECTION B (40 MARKS)**

7. Write an essay on post transcriptional modification of mRNA. **(20 marks)**
8. Describe the structure of DNA polymerase III in *E. coli*. **(20 marks)**
9. Discuss **five** types of PCR methods. **(20 marks)**
10. Give a detailed account of core glycosylation. **(20 marks)**