



TECHNICAL UNIVERSITY OF MOMBASA

School of Applied and Health Sciences
DEPARTMENT OF PURE AND APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN ENVIRONMENTAL HEALTH

APH 4309: BIOTECHNOLOGY AND HEALTH

END OF SEMESTER EXAMINATION

SERIES: December 2024 SERIES

TIME: 2 HOURS

DATE: December 2024

Instructions to Candidates

You should have the following for this examination

Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- a) Peter suffering from defective tooth enamel, which results in brown-colored teeth marries normal woman. All their daughters have brown tooth, but the sons are normal. Peters son marry normal women and all their children are normal. Their daughters marry normal men, and 50% of their children have brown teeth. Diagram the crosses and explain genetically (6 marks)
- b) Describe the properties of the genetic code (6 marks)
- c) Outline types and application of gene therapy (6 marks)
- d) Outline examples of genetic polymorphism in humans (6 marks)
- e) Outline the possible characteristics of x-linked recessive trait (6 marks)

Question TWO

Discuss examples and functions of Human protein produced using recombinant DNA technology (20 marks)

Question THREE

Explain the expectations to the couple with genetic disorder, would gain through genetic counseling (20 marks)

Question FOUR

Discuss the general properties of cloning vectors (20 marks)

Question FIVE

Discuss the overview of the key steps and components involved in eukaryotic translation (20 marks)