MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF PURE APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PHYSICAL AND BIOLOGICAL SCIENCE

SEPECIAL/SUPPLEMENTARY EXAMINATION

SEPT/DEC 2021

2020/2021 ACADEMIC YEAR

THREE YEAR TWO SEMESTER EXAMINATION, BACHELOR SCIENCE IN EDUCATION

UNIT CODE: ABT 300

UNIT TITLE: GENERAL GENETICS

DURATION: 2 HOURS

Instructions to candidates:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

(a) (i) colour blindness is n x –sex chromosome – linked trait. a colour-blind married a carrier woman using a punnet square. Illustrate the genotypic and phenotypic ratio of their F1 generation (5 marks)

(b) Using a well labelled diagram, illustrate the anatomical structure of any eukaryotic cell.

(5 marks)

(c) outline the Lac-operon model of prokaryotic cell metabolism. (5 marks)

(d) Describe any three chromosomal observations in Eukaryotic cells. (5 marks)

(e) (i) Explain 5 significances of mitosis cell division. (5 marks)

(ii) Differentiate between meiosis and mitosis cell division. (5 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

(a) Discuss gene regulation mechanism in prokaryotic cells . (10 marks)
(b) Describe the various phases of mitosis. (10 marks)

QUESTION THREE (20 MARKS)

Discuss the key phases of Binary fission of prokaryotic cell division process (20 marks)

QUESTION FOUR (20 MARKS)

Using well labelled diagram, discuss the process of oogenesis and spermatogenesis.

(20 marks)