



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF PURE AND APPLIED SCIENCE

DEPARTMENT OF APPLIED SCIENCE

UNIVERSITY ORDINARY EXAMINATION

2017/2018 ACADEMIC YEAR

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR DEGREE OF
BACHELOR OF EDUCATION**

ABT 101 – LABORATORY METHODS IN BIOLOGY

DURATION: 2 HOURS

DATE: 19TH APRIL, 2018

TIME: 9.00 – 11.00 A.M.

Instructions to Candidates:

1. Answer **Question 1** 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

- a) Explain the importance of laboratory safety (5 marks)
- b) i. Define genetic engineering (1 mark)
ii. Outline the four basic steps in genetic engineering (4 marks)
- c) State the necessary precautions needed when handling glassware in laboratory (4 marks)
- d) Explain the applications of chromatography (4 marks)
- e) State any four general laboratory hazards (4 marks)
- f) Explain the main steps in Polymerase Chain Reaction (PCR) technique (3 marks)
- g) Evaluate three plant tissue culture techniques (3 marks)
- h) Discuss the importance of plant/animal dissection (2 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO

- a) Describe the process of risk assessment in a laboratory set up (6 marks)
- b) Account for the control measures you would put in place after assessment (14 marks)

QUESTION THREE

Compare and contrast bright-field and phase contrast microscopy (20 marks)

QUESTION FOUR

Describe the paraffin method of preparing tissues (20 marks)