



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY

ABT 4302: CELL, TISSUE AND ORGAN CULTURE

END SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Dec 2016

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) What is the importance of callus culture? (5 marks)
- b) Explain the role of growth regulators on shoot regeneration (6 marks)
- c) Mention FOUR advantages of Axillary shoot proliferation over conventional method of propagation (4 marks)
- d) Explain the phases of organogenesis based of temporal requirement for a specific balance of phytohormones (3 marks)
- e) State any SIX advantages of somaclonal variations (3 marks)
- f) Describe the THREE methods of single cells isolation (3 marks)
- g) Explain the developmental patterns of somatic embryos (6 marks)

Question TWO

- a) Name the major plant organs and give at least FOUR functions of each organ (12 marks)
- b) Explain the various classes of somaclonal variants (8 marks)

Question THREE

- a) Discuss the Applications of Meristem culture (12 marks)
- b) Give a brief account of growth regulators used in plant tissue culture (8 marks)

Question FOUR

- a) Describe the various methods employed in the culture of protoplasts (15 marks)
- b) Mention any FIVE importance of suspension cultures (5 marks)

Question FIVE

Write an essay on the Industrial applications of plant cell and tissue culture (20 marks)