



# MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

BACHELOR OF EDUCATION SCIENCE

SBT 102: PLANT MORPHOLOGY AND ANATOMY

DATE: 17/3/2022

TIME : 2:00 – 4:00 PM

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## Instructions

1. Answer Question 1 (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

## SECTION A: ANSWER ALL QUESTIONS (30 MARKS)

1. (i) Define the following terms as used in plant morphology and anatomy (3 marks)
  - a. Totipotency
  - b. Double fertilization
  - c. Alternation of generation
- (ii) Outline three functions of parenchyma cells (3 marks)
- (iii) Describe the arrangement of leaves on the stem (3 marks)
- (iv) Describe the structure of xylem tissue of an angiosperm (3 marks)
- (v) Explain three modifications of the root to various functions (3 marks)
- (vi) Describe the process of sexual reproduction in Pteridophytes (3 marks)
- (vii) Outline the differences between the anatomy of dicot and monocot leaf (3 marks)
- (viii) Identify three adaptations of seed to Entomophilus of modes of seed dispersal (3 marks)
- ix. Highlight three adaptations of hydrophytes to their habitat (3 marks)
- x. Illustrate three types of Cohesion of the stamen

**SECTION B: ANSWER ANY TWO (2) QUESTIONS (TOTAL 40MARKS)**

2. Discuss the theories explaining shoot and root apical organization (20marks)
3. Describe the reproductive morphology of a flowering plant (20 marks)
4. Discuss the internal structure of a young stem of a young dicotyledonous and monocotyledonous stem (20 marks)
5. Discuss five application of plant cell and tissue culture (10marks)