



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE(AGRICULTURAL EDUCATION & EXTENSION)

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF SCIENCE (BIOLOGY)

SBT 102: PLANT MORPHOLOGY AND ANATOMY

DATE: 18/6/2021

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

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

SECTION A (COMPULSORY)

QUESTION ONE (30 MARKS)

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|----|--|-----------|
| a) | Outline the following concepts with respect to plant morphology | (3 marks) |
| | a. Phylogenesis | |
| | b. Differentiation | |
| | c. Organogenesis | |
| b) | Highlight the differences between vegetative and generative organs | (3 marks) |
| c) | Explain the main zones of a plant root | (3 marks) |
| d) | Describe the metamorphoses observed in roots | (3 marks) |
| e) | Explain the merits and demerits of root subordinate buds | (3 marks) |
| f) | Explain the mechanism of opening and closing of stomata | (3 marks) |
| g) | Outline the structural changes leading to leaf abscission | (3 marks) |
| h) | Explain the yellowing of leaves due to ageing | (3 marks) |
| i) | Describe characteristics of apical meristems | (3 marks) |
| j) | Distinguish direct from indirect somatic embryogenesis | (3 marks) |

SECTION B: ANSWER ANY OTHER TWO QUESTIONS

QUESTION TWO (20 MARKS)

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|----|--|------------|
| a) | Discuss sporogenesis in higher plants | (10 marks) |
| b) | Discuss fertilization in higher plants | (10 marks) |

QUESTIONS THREE (20 MARKS)

Discuss the morphological organization of plants in relation to their environment

QUESTIONS FOUR (20 MARKS)

Discuss micro-propagation

QUESTIONS FIVE (20 MARKS)

Discuss types of tropisms in flowering plants