



MACHAKOS UNIVERSITY

University Examinations 2022/2023 academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION).

BACHELOR OF EDUCATION (SCIENCE)

SBT 101: SURVEY OF THE PLANT KINGDOM

DATE:

TIME:

INSTRUCTIONS

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

SECTION A (COMPULSORY)

QUESTION ONE (30 MARKS)

- a) Carolus Linnaeus is considered the 'father of modern taxonomy'. Highlight his contribution to taxonomy. (3 marks)
- b) Outline some of the features that distinguish plants from other organisms and explain why majority of plants are not parasitic. (3 marks)
- c) The haplontic life cycle is found in some classes of algae. With the aid of an illustration, describe the haplontic lifecycle as seen in Spirogyra. (3 marks)
- d) Based on the mode of nutrition, classify fungi into different categories and give an example in each category. (3 marks)
- e) The sexual life cycle of Bryophytes involves alteration of generations.
 - i. With the help of a diagram, describe the lifecycle of a moss. (4 marks)
 - ii. How does alteration of generations vary between the Bryophytes and Tracheophytes? (2 marks)

- f) Seedless vascular plants dominated the landscape around 350 million years ago. Explain why they lost their dominance in most of the environments (3 marks)
- g) Outline the drought adaptations conferred to Conifers by their needlelike leaves (3 marks)
- h) Highlight the main advantage of cross-pollination over self-pollination in Angiosperms and give two agents of cross-pollination. (3 marks)
- i) Explain how the development of seeds contributed to the successful exploitation of diverse terrestrial habitats by the Gymnosperms and Angiosperms. (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

- a) Flowering plants are considered by many botanists to be the most successful land plants. Discuss. (10 marks)
- b) Discuss the major plant groups classified in the division Anthophyta and their characteristics. (10 marks)

QUESTION THREE (20 MARKS)

- a) Using an illustration, discuss in detail the Diplohaplontic life cycle of algae. (10 marks)
- b) Discuss the features that are used to distinguish between different species of the divisions Rhodophyta, Chlorophyta and Phaeophyta in algae. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss the major classification groups of gymnosperms (10 marks)
- b) Using an illustration, discuss the life cycle of pine (10 marks)

QUESTION FIVE (20 MARKS)

Pteridophytes occupy an intermediate position between bryophytes and higher vascular plants. Discuss.