



MACHAKOS UNIVERSITY

University Examinations 2018/2019
SCHOOL OF PURE AND APPLIED SCIENCES
DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR BACHELOR OF SCIENCE (BIOLOGY)

SBT 102: PLANT MORPHOLOGY AND ANATOMY

DATE: 25/7/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS: Answer question 1 (compulsory) and any other two questions

SECTION A

1.
 - a) Describe the meaning of “Fluid Mosaic Model” as applied in plant cell plasma membrane (3 marks)
 - b) Explain the justification for elongation of stems of certain plant species like *Vitis vinifera* (grape vine) (3 marks)
 - c) State from which specific epithet have the following plant species names been derived:
 - i. *Hoslundia opposita* (1 mark)
 - ii. *Uvaria scheffleri* (1 mark)
 - iii. *Ziziphus mauritiana* (1 mark)
 - d) Explain why accessory fruits are also called false fruits. (3 marks)
 - e) With help of a diagram, illustrate the following plant morphological features:
 - i. Serrate leaf margin. (1 mark)
 - ii. Hastate leaf base. (1 mark)
 - iii. Cordate leaf shape. (1 mark)

- f) Explain why the cells of hypodermis are compactly arranged as opposed to those of the cortex. (3 marks)
- g) Briefly describe the role of diagnostic features in plant identification and classification. (3 marks)
- h) Explain why similar inflorescence types can be found in unrelated plant families. (3 marks)
- i) Briefly, describe the meaning of plant morphogenesis and its role in plant growth and development (3 marks)
- j) Giving examples in each case, distinguish between Obligate and facultative halophytes (3 marks)

SECTION B

- 2. Discuss the process of fertilization and seed development in angiosperms. (20 marks)
- 3. Discuss the different types of inflorescences known in higher plants. (20 marks)
- 4. Discuss the anatomical and functional structure of the following plant tissues:
 - (a) Xylem. (10 marks)
 - (b) Phloem. (10 marks)
- 5. Discuss the development of successive cambia in vascular plants (20 marks)