



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

SBT 201: PLANT FUNCTION

DATE: 23/9/2019

TIME: 2.00-4.00 PM

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. a) Distinguish between the following (3 marks)
 - i. acid and base.
 - ii. molarity and molality.
 - iii. saturated solution and supersaturated solution.
- b) What criteria are used to judge an element essential or non-essential? (3 marks)
- c) Define the following terms.
 - i. Adsorption.
 - ii. Suspension.
 - iii. Emulsion.
- d) What is meant by the term permanent wilting percentage? (3 marks)
- e) What is the basis of classifying nutrients into micro and macro-nutrients? (3 marks)
- f) Briefly describe the dark reactions of photosynthesis. (3 marks)
- g) What is the tyndall phenomenon? (3 marks)
- h) Why is respiration important to plants?
- i) Distinguish between:
 - i. Simple and compound lipids

- ii. Phospholipids and glycolipids
- iii. Saturated and unsaturated fatty acids.
- j) What is meant by epinasty? (1 mark)
- k) What do you understand by the term apical dominance? (2 marks)

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

- 2. a) Discuss six properties of colloids. (12 marks)
b) Describe experiments that can be carried out to test for reducing sugars and starch in a named plant part. (8 marks)
- 3. a) Describe the reaction sequence of glycolysis. (12 marks)
b) Describe the differences between aerobic and anaerobic respiration. (8 marks)
- 4. a) Give an account of distribution of enzymes in a plant tissue. (8 marks)
b) Discuss the properties of enzymes. (12 marks)
- 5 a) Discuss the classification of proteins. (12 marks)
b) Distinguish between the following. (8 marks)
 - i. lyophilic and lyophobic systems.
 - ii. solation and gelation.
 - iii. dispersed phase and dispersion medium.
 - iv. hydrophobic and hydrophilic systems.